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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND INTERFERENCES**

In re Application of:

Appeal No. _____

RICHARD G. HYATT, JR.

Serial No.: 08/720,070

Examiner: BARRETT, SUZANNE D.

Filed: 27th of September 1996

Art Unit: 3676

For: ELECTROMECHANICAL CYLINDER PLUG

Attn: Board of Patent Appeals & Interferences

FIFTH APPEAL BRIEF

Paper No. 88

Director, U.S. Patent & Trademark Office
Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 CFR §1.192(a), in substitution for Appellant's original *Appeal Brief*, in response to the *Notification of Non-Compliant Appeal Brief*, Paper No. 08042005 issued on the 5th of August 2005, and in further response to the *Notification of Non-Compliant Appeal Brief*, Paper No. 03162005 issued on the 17th of March 2005, together with the intervening successive progression of changes in the *Code of Federal Regulations* subsequent to the timely filing of Appellant's *Appeal Brief* on the 3rd of June 2004, Appellant submits this *Fifth Appeal Brief* pursuant to Appellant's Notice of Appeal filed on the 3rd of December 2003, to perfect Appellant's appeal to the Board of Patent Appeals and Interferences from the final rejection of claims 1 through 24, 34 through 38, 46 through 52, 54, 56, 64 through 70, 75 through 77, 85, 88 through 106, 108, 109, 111 through 116 and 119 through 121.

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I. REAL PARTY IN INTEREST

Pursuant to 37 CFR §1.192(c)(1)(as amended),¹ the real party in interest is:

Richard G. Hyatt, Jr.,

the sole inventor of the subject matter defined by the pending claims.

II. RELATED APPEALS AND INTERFERENCES

37 CFR §1.192(c)(2),² Appellant notes that an undocketed appeal in Appellant's co-pending divisional application Serial No. 10/440,308, and may have a bearing on the Board's decision for some of the finally claims pending in this pending appeal. No interferences have yet been docketed by the Examining staff.

III. STATUS OF CLAIMS

Pursuant to 37 CFR §1.192(c)(3),³ the status of the claims is, as follows:

Subsequent to entry of Appellant's Fourth Amendment under 37 C.F.R. §1.116(b) filed on the 25th of November 2004, claims 1 through 56, 64 through 84, 90 through 100, 105 through 116 and 119 through 121 are pending in the application. Of the latter claims 1, 6, 11, 14, 25, 43, 46, 56, 64, 65, 70, 75 through 77, and 90 through 92 are independent, whereas the

¹ 37 CFR §41.37(c)(1)(i). On the recommendation of the Group Director, "Tech Center" 3600, citations to the current version of the Rules of Appellate Practice have been removed from the text of this Brief.

² 37 CFR §41.37(c)(1)(ii).

³ 37 CFR §41.37(c)(1)(iii) (as amended).

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remaining claims are dependent.

Claims 25 through 33, 39 through 42, 55, 78 through 84 and 107 are allowed.

Claims 53, 71, 72, 74, 86, 87 and 110 are objected to as dependent upon a rejected claim.

Claims 1 through 24, 34 through 38, 46 through 52, 54, 56, 64 through 70, 75 through 77, 85, 88 through 106, 90 through 100, 105, 106, 108, 109, 111 through 116, 119 through 121 are rejected.

Claims 43 through 45, 73 and 94 are withdrawn from consideration.

Claims 57 through 63, 85 through 89, 101 through 104, 117 and 118 have been cancelled.

In compliance with 37 CFR §1.192(c)(9),⁴ a copy of the claims involved in this appeal, as of the filing date of this paper are contained in the Appendix I. One amendment proposing a change of one noun in claim 14 is filed simultaneously with this Appeal Brief. Appendix II, in conformance with 37 CFR §1.192(c)(9) presents a copy of the claims involved in this appeal as those claims would read upon entry of the amendment filed simultaneously this the Appeal Brief.

IV. STATUS OF AMENDMENTS

Pursuant to 37 CFR §1.192(c)(4),⁵ the status of all amendments filed subsequent to the final rejection is, as follows:

⁴ 37 CFR §41.37(c)(1)(viii).

⁵ 37 CFR §41.37(c)(1)(iv)

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No claim amendments were made prior to filing of the present Appeal Brief.

An amendment under 37 C.F.R. §1.116(b) was concurrently submitted with the present Appeal Brief on the 3rd of June 2004. In a belatedly issued *Notification Of Non-Compliance* dated on the 17th of September 2004, one of three different Papers, all bearing Nos. 09152004, the Examiner stated that the "statement of the status of the claims contained in the brief is incorrect. Since [*sic*] the amendment filed 6/3/04 has not been entered... ."

In response to the *Notification Of Non-Compliance* action issued on 17th of September 2004 (one of three separate Paper Nos. 09152004) in reply to the Amendment under 37 C.F.R. §1.116(b) filed on 3 June 2004, Appellant filed a second Amendment under 37 C.F.R. §1.116(b) on 24 September 2004. In the second Amendment under 37 C.F.R. §1.116(b) filed on the 24th of September 2004, claims 85 through 89 were canceled without prejudice or disclaimer, and claims 1, 6, 11, 14, 70 and 121 were amended. In a telephone conversation with Appellant's undersigned attorney on the afternoon of Monday, the 18th of October 2004, the Examiner stated that the clerical staff of the Office had not yet delivered this Amendment to the Examiner.

Simultaneously with the filing of the Appeal Brief, Appellant filed a third Amendment as an alternative to the second Amendment filed on the 24th of September 2004, on the 18th of October 2004, as a third Amendment again requesting amendment of claims 1, 6, 11, 14 and 70 to remove typographic errors. One of the three Paper Nos. 09152004 stated that the Examiner was agreeable to entry of these amendments of claims 1, 6, 11 and 70.

Simultaneously with the filing of the Appeal Brief on or about the 25th of October 2005, Appellant filed an alternative to the second Amendment filed on the 24th of September 2004,

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as a fourth Amendment (Part I) again requesting amendment of claims 1, 6, 11, 14 and 70 to remove typographic errors, and to additionally request cancellation of claims 85 through 89 and 101 through 104, and as (Part II) requesting correction of typographic errors in claims 56, 75 and 120. One of the three Paper Nos. 09152004 stated that the Examiner was agreeable to entry of these amendments of claims 1, 6, 11 and 70. This simultaneously filed fourth Amendment (Part I) and (Part II) is, other than for the cancellation of claims 101 through 104 and amendment of claims 56, 75 and 120, identical to the third Amendment filed on the 18th of October 2004.

Paper No. 11162004, an Advisory Action dated on the 18th of November 2004, confirmed entry of parts I and II of Appellant's fourth Amendment filed on the 25th of October 2004 under 37 CFR §41.33. Paper No. 08042005 stated that under 37 CFR §41.31(a)(1), (2) and (3) the Examiner was prohibited from entering that amendment.⁶

An amendment proposing a change of one noun in claim 14 was filed simultaneously with Appellant's Fourth Appeal Brief; Paper No. 08042005 stated that under 37 CFR §41.31(a)(1), (2) and (3) the Examiner was prohibited from entering that amendment.

An amendment filed simultaneously with this Fifth Appeal Brief cancels claims 85 through 89 and 101 through 104 under 37 CFR §41.33(b)(1), which does not affect the scope

⁶ Appellant notes (i) that the *Consolidated Patent Rules* §§41.1, *et seq.* have an effective date of the 13th of September 2004, long subsequent to the timely filing of Appellant's *Notice of Appeal* on the 3rd of December 2003 and the timely filing of Appellant's *Appeal Brief* on the 3rd of June 2004, and (ii) that the *Consolidated Patent Rules* §§41.1, *et seq.* fail to recognize that the clerical staff of "Tech Center" 3600 currently requires more than three (3) months to deliver to the Examining staff each paper filed by Appellant.

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of any other pending claim in the proceeding.

V. SUMMARY OF THE INVENTION

Pursuant to 37 CFR §1.192(c)(5),⁷ and referring to Figure 1 through 22 collectively, and page 9, line 20 of the specification, Appellant discloses a hierarchically⁸ adaptable lock 100⁹ by using a removable cylindrical plug 101¹⁰ that is rotatably held with a lock cylinder 102¹¹ of a locking mechanism. The plug has an exposed terminal face base 72¹² perforated by a keyway 101a and a distinct electrical contact aperture 104x. The plug 101 contains either a mechanical locking mechanism, such as a re-keyable tumbler stack 82, and an electrical operator 105,¹³ 106, 107, 108,¹⁴ or simply a key retaining mechanism¹⁵ and an electrical operator 105, 106, 107, 108, wholly within the cylindrical exterior surface of the plug 101. The opposite base of the

⁷ 37 CFR §41.37.

⁸ These hierarchies are particularly illustrated by Figures 19 through 22, and described beginning on page 23, line 4, and continuing through page 24, line 6.

⁹ Page 10, lines 1 and 4.

¹⁰ Page 10, lines 6, 11, 13 and 19.

¹¹ Beginning with page 10, line 4.

¹² Page 10, lines 6 and 7, and page 20, line 16.

¹³ Page 20, line 12.

¹⁴ Page 12, beginning with line 20.

¹⁵ Page 12, beginning with line 5.

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plug operationally supports a tailpiece 101q¹⁶ able to rotate a cam 103¹⁷ and position a bolt of the locking mechanism. Referring additionally to Figure 18,¹⁸ after insertion of a blade of a properly bitted and profiled key 200,¹⁹ electrical power from battery 202, or alternatively electrical power and a data signal from the signal generator superimposed upon the electrical power, may be transmitted from electrical circuits of the key to the electrical operator 106b within the plug 101. Activation of the electrical operators 105,²⁰ 106, 107, 108²¹ within the plug 101, in conjunction with correct displacement of the mechanical locking mechanism,²² or in the embodiments constructed without a mechanical locking mechanism, simple activation of the electrical operator 105, 106, 107, 108,²³ by application of electrical power to one, or more, of the corresponding coils 105b, 106b, 107b, 108b,²⁴ enables rotation of plug 101²⁵ within the bore of cylinder 102 as torque is manually applied to the blade of the key 200. An electronic memory

¹⁶ Page 11, line 16.

¹⁷ Page 11, line 13.

¹⁸ Page 22, line 18.

¹⁹ Page 10, line 14, and page 23, line 5.

²⁰ Page 20, line 12, although note discussion of blocking armature 105a and solenoid coil 105b, beginning with line 7.

²¹ Page 12, beginning with line 20.

²² Page 11, beginning with line 5.

²³ Page 22, beginning with line 18.

²⁴ Page 22, beginning with line 18, through page 23, line 3.

²⁵ Illustrated with different implementations, in Figures 1 through 15.

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ROM, or an electronic memory ROM and an electronic logic circuit μ P wholly contained within the plug,²⁶ may be electrically interposed between the electrical operator and the electrical contacts 104x receiving power, or power and data signals, from the key 200, to control the rotation of cylinder plug 101 within cylinder shell 102, and thus govern the operation of lock 100 in dependence upon authentication and comparison of encoded data.²⁷

Integration of an electrical operator with a locking mechanism may be achieved by incorporation of one, or more, electrical operators 105, 106, 107, 108²⁸ such as, by way the simplest of examples, the mere substitution electrical operators 105, 106, 107, 108 for pin tumblers 101b, or other types of tumblers,²⁹ within pin cylinders 80, 82³⁰. Alternatively, a lock may be constructed with one, or more, electrical operators functioning without any mechanical locking mechanism simultaneously resident within cylinder plug 101. In either implementation, re-boring of one, or more, of pin cylinders 80, 82 may be necessary when retrofitting an existing lock; this will not require removal or other alteration of cylinder shell 102.³¹

Contrary to the inference of the Advisory Action, Paper No. 03162005, the appealed

²⁶ Page 22, beginning with line 12.

²⁷ Page 22, beginning with line 14.

²⁸ Page 22, beginning with line 18.

²⁹ With a concomitant re-bitting of the corresponding key to omit from the blade of the key any (or each) "tooth corresponding to the cylinder occupied by solenoid 105b". See, page 20, line 21 and page 21, lines 1 and 2.

³⁰ Page 21, lines 8 through 11 and page 22, beginning with line 18., as illustrated by Figures 1 and 8A.

³¹ Page 21, lines 8-11.

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claims do no use either “means plus function” or “step plus function” definitions under the sixth paragraph of 35 U.S.C. §112.³²

VI. ISSUES

1. Whether Appellant’s originally filed specification provides enablement for claims 11 through 13, 90 and 120 under the first paragraph of 35 U.S.C. §112?

A. Appellant’s Originally Filed Specification Provides Both A Written Description And Enablement For The Subject Matter Defined By Claims 11 through 13.

B. Appellant’s Originally Filed Specification Provides Both A Written Description And Enablement For The Subject Matter Defined By Claims 90 And 120.

2. Whether claims 1 through 5, 6 through 10, 14 through 24, 35 through 38, 70, 106, 111 and 121 comply with the second paragraph the second paragraph of 35 U.S.C. §112 by pointing out and distinctly claiming the subject matter which Appellant regards as his invention?

3. Whether claims 1 through 5, 11 through 13, 34, 65 through 69, 75, 92 through 100, 112 and 121 have been improperly rejected under the judicially created doctrine of

³² 37 CFR §41.37(c)(1)(v).

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obviousness-type double patenting based upon Appellant's divisional U.S. Patent No. 6,564,601?

4. Whether claims 46 through 52, 54, 56, 64, 70, 76, 77, 90, 91, 105, 108, 109, 111, 113 through 116, and 119 through 121 are patentably distinguishable and allowable under 35 U.S.C. §103(a) over a proposed combination of Gokcebay, U.S. Patent No. 5,552,777 in view of Thordmark *et al.*, U.S. Patent No. 5,542,274 and Naveda, U.S. Patent No. 4,416,127?

VII. GROUPING OF THE CLAIMS

Grouping of the Claims

As confirmed by Paper No. 37, a *Corrected Decision On Petition* pursuant to 37 CFR §1.144, the instant Application discloses numerous species; several of those species are covered by the questions about the propriety of the final rejections of the claims now before the Board. These species have several features, characteristics and modes of operation, and each claim was separately rejected in Paper Nos. 39 and 53. Paper Nos. 39 and 53 present but a single rejection of each claim. Consequently, the issues of patentability are particular to each claim, and each claim therefore, must stand or fall individually on the specific issue of patentability, independently of any other claim. Appellant notes that the style of the Examining Staff in explaining their interpretation of the applied art over the past eight and one-half years, and the inability of the Office to provide the clarification requested by Appellant under 37 CFR §1.104,

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makes it difficult for Appellant to precisely group the pending claims, due to the expectation that an *Examiner's Answer* may advance an explanation of the art not previously made of record. Where particular the administrative record fails to address claims such as dependent claims 50, 52 and 54, there is no need under 37 CFR §41.37 to further length an already long Brief to specifically discuss these claims.

VIII. ARGUMENT

1. Rejection Of Claims 11-13, 90 & 120 Under First Paragraph Of 35 U.S.C. §112

Claims 11 through 13, 90 and 120 were rejected under the first paragraph of 35 U.S.C. §112, with an averment that Appellant's specification failed to satisfy the enablement requirement of the first paragraph of 35 U.S.C. §112 because these claims contain "subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and /or use the invention." The rejection is improper for the following reasons.

A. Appellant's Originally Filed Specification Provides Both A Written Description And Enablement For The Subject Matter Defined By Claims 11 Through 13

In support of the rejection, Paper No. 53 stated that,

"Claims 11-13 ... are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter *which was not described in the specification* in such a way as to enable one skilled in the art ... to make and/or use the invention".³³

Under current Office practice,

³³ Paper No. 53, ¶3.

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“[t]o satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonable conclude that the inventor had possession of the claimed invention”.³⁴

The typical issue “raised in the cases is most often phrased as whether the original application provides ‘adequate support’ for the claims at issue or whether the material added to the specification incorporates ‘new matter’ in violation of 35 U.S.C. §132.”³⁵ Here, no matter has been added to the specification; the issue before the Board is thus, “whether the original application provides ‘adequate support’ for” claims 11 through 13?

The Examining staff premised this rejection of claims 11 through 13 on grounds that,

“amended claim 11 set forth, in the last two lines, the phrase ‘distal member ... distal member’, which is not understood (how can the distal member surround itself?”.³⁶

No other averment is made in support of this rejection. At issue therefore, is “whether the original application provides “adequate support” for the claims at issue”?

Appellant invites the attention of the Board to Figures 2 through 7, and especially to the embodiment of Figure 3 which shows the distal portion 106a surrounding the distal portion 106B of detent 106A. In the language of the original specification, “[t]he open distal end of chamber 80 is intersected by a circumferential groove 101l which may partially, or completely,

³⁴ *MPEP*, §2163, p. 2100-172 (Rev. 3, August 2005).

³⁵ *MPEP*, §2163, p. 2100-172 (Rev. 3, August 2005).

³⁶ Paper No. 53, ¶3, page 3.

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encircle the exterior circumferential surface of plug 101”,³⁷ “[a]rmature 106a forms the radially outward distal end of solenoid coil 106b, and is radially outwardly biased by spring 106D so as to extend radially upwardly into the path of groove 101 and thereby engage detent 106A”,³⁸ and “cavity 106c will surround detent 106A.”³⁹ The attention of the Board is further invited to page 14 of the originally filed specification, where Appellant teaches that,

“when an unidirectional electrical current is applied through the particular winding 106b, 107b, 108b, the corresponding shaft 106d, 107d, 108d will either axially reciprocate (*i.e.*, radially through its corresponding chamber 82) along axis A or incrementally rotate (*e.g.*, by ninety degrees within its corresponding chamber 82) around axis A and thereby alter the positional relation between blocking detent 106A or 107A relative to the corresponding blocking armature 106a, 107a or 108a”.⁴⁰

Turning to page 25, Appellant further teaches that,

“The plug is configured with the electrical operator maintaining the distal member within the plug with the distal member extended not beyond the exterior surface while the distal member is in the first position, and maintaining the distal member in engagement with the cylinder while the distal member is in the second position”.⁴¹

In short, one distal end (of chamber 80)⁴² does in fact *surround* another distal end (of armature

³⁷ Original specification, page 12, lines 15 and 16.

³⁸ Original specification, page 12, lines 18 through 20.

³⁹ Original specification, page 14, line 15.

⁴⁰ Original specification, page 14, lines 5-10.

⁴¹ Original specification, page 25, lines 7-10.

⁴² Original specification, page 12, line 15.

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106a)⁴³, and, depending upon the “orientation relative to said exterior surface obstructing said relative movement when said distal member at least partially surrounds said distal member.”⁴⁴

Alternatively, and referring again to the foregoing excerpts from Appellant’s originally filed specification in conjunction with Figure 3, the distal end of armature 106a and its exposed recess 106c will surround the distal end of detent 106A and, depending upon the “orientation relative to said exterior surface obstructing said relative movement when said distal member at least partially surrounds said distal member.”⁴⁵ Although the language of claim 11 may be open to an alternate wording, that is not at issue here. In point of fact, the foregoing excerpts demonstrate that Appellant does satisfy both the written description and enablement prongs of the first paragraph of 35 U.S.C. §112 by describing how to make and use a “distal member” of Appellant’s “electrical operator”, as illustrated in at least three embodiments on 106(a), 107(a) and 108(a) in Figure 1, makes this rejection improper under both the “written description” and “enablement” requirements of the first paragraph. Appellant notes however, that there is no rejection under the second paragraph of §112 of claim 11 in the record before the Board. Furthermore, the rejection is based upon a conclusory statement by the Examining staff; there

⁴³ Original specification, page 12, line 18.

⁴⁴ Claim 11, penultimate and last lines. With the elected species before the Board, Appellant’s “obstructing said relative movement” may be achieved by causing the “different orientation” which may be either radial or rotational, depending upon both the design of the distal portion of the armature 106a, 107a, 108a, etc. and whether the winding of the coil is that of a solenoid, a rotary motor, or alternatively, a stepping motor, or alternatively, a combination of a radial and rotational change.

⁴⁵ Claim 11, penultimate and last lines.

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is no evidence of record of an absence of either (i) a lack of enablement the subject matter of claim 11, of (ii) an absence of a written description the subject matter of claim 11, or (iii) a failure to disclose the best mode for practicing the subject matter of claim 11.⁴⁶ Consequently, in view of the satisfaction of the requirement for enablement of the phrases "distal member", this rejection may not be sustained under the first paragraph of §112.⁴⁷

B. Appellant's Originally Filed Specification Provides Both A Written Description And Enablement For The Subject Matter Defined By Claims 90 And 120

First, Appellant notes that Paper No. 53 contains various assertions that infer that the use of the phrase *at least one*⁴⁸ in the Field, *et al.* '307 patent means *a plurality or more than one*. The Examiner has cited no authority under the statute to make this inference. Paper No. 53 has failed to demonstrate that the phrase *at least one*⁴⁹ as used in the Field, *et al.* '307 patent defines any number other than *one*. Attention of is invited to the complete absence of authority for the Examiner's proposition that the phrase *at least one* means any number other than *one*. Appellant's Figure 1, which displays an array of at least three electromechanical locking members 106a, 107a and 108a, all of which satisfy the definition of a locking member given by Field, *et al.* '307 in column 5, lines 1 through 8, and all or any one of which might be borne by

⁴⁶ *High Concrete Structures, Inc. v. New Enter. Stone And Lime Co.*, 377 F.3d 1379, 71 USPQ2d 1948. 1951, WL 1689152 (Fed. Cir. 29th July 2004).

⁴⁷ Where the meaning of a claim is "reasonably discernable," the claim is not indefinite. *Bancorp Servs., LLC v Hartford Life Ins. Co.*, 359 F.3d 1367, 69 USPQ2d. 1996 (Fed. Cir. 1st March 2004).

⁴⁸ Claim 1 of Field, *et al.* '307 reads, in part, "wherein *at least one* electromechanical locking member is disposed within the barrel" Column 9, lines 5 and 6.

⁴⁹ Claim 1 of Field, *et al.* '307, column 9, lines 5 and 6.

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Appellant's array of apertures 80, 82.

Second, Paper No. 53 also states that,

"the instant specification fails to provide support for the "at least one electromechanical locking member" ⁵⁰

Attention is invited to the illustrations in Figures, and especially Figure 1, where three distinct electromechanical locking members 106a, 107a and 108a are individually identified and described, and are collectively illustrated as an array. The structure and operation of each of these locking mechanisms are described in the originally filed specification. The attention of the Board is invited to also note Appellant's express teachings in, among other features, that Integration of an electrical operator with a locking mechanism may be achieved by incorporation of one, or more, of electrical operators 105, 106, 107, 108⁵¹ such as, to use the simplest of examples, the insertion of electrical operators 105b, 106b, 107b, 108b for pin tumblers 101b, or other types of tumblers,⁵² into pin cylinders 80, 82⁵³. Re-boring of one, or more, of pin cylinders 80, 82 may be necessary when retrofitting an existing lock; this will not require removal or other alteration of cylinder shell 102.⁵⁴ In short, Figure 1 illustrates a plurality of

⁵⁰ Paper No. 53, page 2, paragraph 3.

⁵¹ Page 22, beginning with line 18.

⁵² With a concomitant re-biting of the corresponding key to omit from the blade of the key any (or each) "tooth corresponding to the cylinder occupied by solenoid 105b". See, page 20, line 21 and page 21, lines 1 and 2.

⁵³ Page 21, lines 8 through 11 and page 22, beginning with line 18., as illustrated by Figures 1 and 8A.

⁵⁴ Page 21, lines 8-11 expressly teach that "In a particular practice, the diameter of one of pin cylinders 80, 82 may not be sufficiently wide to accommodate a particular

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apertures (e.g., pin cylinders 80, 82) and a plurality of solenoids 106b, 107b and 108b, together with a plurality of tumbler pins 101b. Alternatively, claims 90 and 120 may be practiced with but a single solenoid 106b, 107b or 108b. In short, there is no basis on the record before the Board to support the assertion of the Examining staff that "the instant specification fails to provide support for the 'at least one electromechanical locking member'";⁵⁵ moreover, the Examining staff has submitted to the Board a record that is singularly devoid of either citation supporting this assertion or other rationale justifying the assertion. This rejection may not therefore be sustained.

In view of these teachings, there is no evidence of record to establish a lack of an absence of either (i) a lack of enablement the subject matter of claims 90 or 120, of (ii) an absence of a written description the subject matter of claims 90 or 120, or (iii) a failure to disclose the best mode for practicing the subject matter of claims 90 or 120.⁵⁶ Consequently, in view of the satisfaction of the requirement for enablement of the phrase "distal member", this rejection may not be sustained under the first paragraph of §112.⁵⁷

Third, the attention of the Board is invited to the description of the *electromechanical*

solenoid and will require re boring of the cylinder. The rebored plug can still be retrofitted into an already installed cylinder however, without the necessity of removing cylinder 102."

⁵⁵ Paper No. 53, page 2, paragraph 3.

⁵⁶ *High Concrete Structures, Inc. v. New Enter. Stone And Lime Co.*, — F.3d —, WL 1689152 (Fed. Cir. 29th July 2004).

⁵⁷ Where the meaning of a claim is "reasonably discernable," the claim is not indefinite. *Bancorp Servs., LLC v Hartford Life Ins. Co.*, 359 F.3d 1367, — USPQ2d. — (Fed. Cir. 1st March 2004).

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locking member given by Field, *et al.* '307:

"[a] plurality of electromechanical locking members 50, 52, 54 preferably are located within the central recess portion 42. The locking members are referred to as electroomechanical because, as described below, there are moved under the force of an electronically powered drive mechanism." ⁵⁸

Wholly absent from Field, *et al.* '307 is any attribution of any electromechanical characteristic or property to elements 50, 52, 54; Field, *et al.* '307 describes elements 50, 52, 54 as a passive component. In contradistinction, Appellant's locking pin 201a is disclosed as a mechanical component made of a ferromagnetic material such as iron, that is moved under the force created by an electronically powered drive mechanism, namely coil 201b. Alternatively, Appellant's "armature 106a" ⁵⁹ contains at least one of the "grooves or slots 51, 53, 55" attributed by Field, *et al.* '307 to his "locking members 50, 52, 54." ⁶⁰ Wholly absent from Paper No. 52 is any explanation of why slots 51, 53, 55 in Field, *et al.* '307 convert each of elements 50, 52, 54 into "at least one electromechanical locking member", while slots 107c, 108h and grooves 105n of Appellant's electromechanical components 105D, 106a, 107a and 108a do not similarly convert Appellant's electromechanical components into "electromechanical locking members", when Appellant's electromechanical components 105D, 106a, 107a and 108a are disclosed as responding to an electrically driven motor or solenoid by exhibiting movement relative to a detent, or to a sidebar, or other obstruction?

⁵⁸ Field, *et al.* '307, col. 5, lines 65 through 67, and col. 6, lines 1 and 2.

⁵⁹ Shown in Figures 2 and 3.

⁶⁰ Field, *et al.* '307, col. 5, lines 5 and 6.

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Absent any basis for the Examiner's inference ⁶¹, Paper No. 52 fails to satisfy the standard required under 37 CFR §1.104, and is incomplete to the extent that Appellant can not reasonably and accurately comply with the requirement for a Request under 37 CFR §1.607. Accordingly, and in view of the absence of any evidence of record establishing an absence of enablement, this rejection should not be maintained absent completion of an administrative record in compliance with 37 CFR §1.104(a) and (b) which supports this rejection; Appellant has previously requested clarification, via a supplemental to Paper No. 53, containing:

- An explanation of the meaning of the phrase *at least one*, as used in Paper No. 53.
- Identification of authority that establishes that the phrase *at least one* indicates a number greater than one under the second paragraph of 35 U.S.C. §112.
- Identification of authority that supports the Examiner's explanation in the supplemental Paper No. 53 of the meaning of the phrase *at least one* stated by the Examiner.
- A written explanation of the difference between an "electricomechanical locking member" and Appellant's "armatures" and "locking pins", as those terms pertain to this application.
- A written identification of the column and line number of Field, *et al.* '307 giving an explanation of any *electromechanical* property and characteristic of elements 50, 52 and 54 that defines a difference between an "electrical element", as those terms pertain to this application.
- A written explanation by the Examiner of why slots 51, 53, 55 in Field, *et al.* '307 convert each of elements 50, 52, 54 into "at least one electromechanical locking member", while slots 107c, 108h and grooves 105n of Appellant's electromechanical components 105D, 106a, 107a and 108a do not similarly convert Appellant's electromechanical components into "electromechanical locking members", when Appellant's electromechanical components 105D, 106a, 107a and 108a are disclosed as

⁶¹ See, for example, Paper No. 53, paragraph 3.

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responding to an electrically driven motor or solenoid by exhibiting movement relative to a detent, or to a sidebar, or other obstruction?

These requested items of clarification have not been forthcoming; consequently, absent the requested clarification to the contrary, the record before the Board conclusively establishes that more than one art-recognized noun may be used to describe features and components disclosed in Appellant's application. In view of the foregoing explanation and demonstration of enablement under the first paragraph of 35 U.S.C. §112, these rejections should not be sustained. Such action from the Board is respectfully requested.

2. **Claims 1 through 5, 6 through 10, 14 through 24, 35 through 38, 70, 106, 111 and 121 comply with the second paragraph the second paragraph of 35 U.S.C. §112 by pointing out and distinctly claiming the subject matter which Appellant regards as his invention.**

Claims 1 through 10, 14 through 24, 35 through 38, 70 through 74, 106, 111 and 121 were rejected in Paper No. 53 under the second paragraph of 35 U.S.C. §112 "as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention." Appellant addresses these claims seratim in the following paragraphs.

Claim 1

Paper No. 53 states that "the phrase 'for relative to movement' is grammatically improper and not understood." Appellant submits that when this phrase is read in context, in the including paragraph of claim 1 taken in its entirety, namely:

"a sidebar positioned between said first base and said second base to reciprocate between a first location with said sidebar

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simultaneously engaging said plug and a cylinder surrounding said plug, and a second location releasing said plug for relative to movement between the cylinder and said plug”,

this phrase is readily understandable, as is any phrase with an object of the preposition “to.”

Claim 6

Paper No. 53 states that “line 20, ‘locking means’ should be—locking device— for proper antecedent basis.” Claim 6 defines but a single “locking” component; read in context, claim 6 states:

“a locking device disposed within said apertures to release an obstruction when the key while inserted into said keyway engages in a selected relation with said locking means, and to maintain said obstruction absent said selected relation ...”⁶²

Appellant submits that although the precise terminology is not repeated in the second instance (“locking means”) in this paragraph, there is no lack of clarity or indefiniteness present in claim 6 because “the failure to provide explicit antecedent basis for terms does not render a claim indefinite.”⁶³

Claim 14

Paper No. 53 states that “line 6, ‘said first end and second end’ lacks antecedent basis.”

Read in its context, claim 14 recites,

“a stationary detent positioned between said first end and second end while extending into said slot, and providing simultaneous engagement of said cylinder and said plug while said cylinder

⁶² Claim 6, lines 13-15.

⁶³ *MPEP*, 8th Ed., Rev. 3 (August 2005), §2173.05(e), p. 2100-220.

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remains in said rest orientation".⁶⁴

This paragraph is preceded by paragraphs defining but two component parts of claim 14, namely "a cylinder containing a hollow interior recess" and "plug ... resident within said hollow recess relative to said cylinder ...". As a general rule, "[i]nherent components of elements recited have antecedent basis in the recitation of the components themselves."⁶⁵ Given the foregoing demonstration of clarity and lack of indefiniteness in the foregoing claims

In claim 14, Appellant's "said first end and second end" have inherent antecedent basis in either the recited combination of the two preceding elements, namely the recited combination of "a cylinder containing a hollow interior recess" and "plug ... resident within said hollow recess relative to said cylinder ..." or alternatively, in either of the two preceding elements, simply because Appellant's corresponding "detent" is defined by claim 14 as being located "between said first end and second end". Both the "cylinder" and the "plug", as well as their combination inherently have ends. There is therefore, no lack of clarity or indefiniteness present in claim 14.

Claim 70

Paper No. 53 states that "in line 12, 'logical' should be changed to ~~logic~~ for proper antecedent basis. This refers to the introduction in the fourth paragraph of claim 70 of "a logical circuit" and the consistent reference thereafter to Appellant's "logic circuit." Be that as it may, the adjective "logic" is fully consistent with the nominative phrase "logical circuit", given that

⁶⁴ Claim 14, lines 6-8.

⁶⁵ *MPEP*, 8th Ed., Rev. 3 (August 2005), §2173.05(e), p. 2100-220.

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the "logical circuit" is dedicated to execution of logic functions. Given a positive introduction of this component, and the absence of any other circuit or component which could be confused with Appellant's "logical component", there is neither a lack of clarity or indefiniteness present in claim 70.

Claim 121

Paper No. 53 states that "in line 6, 'said cylinder plug detent' lacks antecedent basis."

In its entirety, claim 53 defines,

"a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;
a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess;
a bar interposed between said shell and *said cylinder plug detent* extending radially from a second recess within said shell into a passage within said cylinder plug to create an obstruction to rotation of said cylinder plug within said hollow recess;
said cylinder plug comprising:
a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base configured to support a cam; and
an electrical operator borne by said cylinder plug and rotatable with said cylinder plug, said electrical operator being electrically operable to respond to a control signal by moving independently of *said detent* between one of a first orientation accommodating relative movement between *said detent* and said cylinder plug and a second and different orientation maintaining obstruction of said relative movement by engaging *said detent*, and another of said first orientation and said second orientation."

In each instance, the relation between Appellant's *cylinder plug detent* and the "electrical operator" is particularly pointed out and distinctly claimed; the absence of a positive

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introduction of Appellant's *cylinder plug detent* here fails to detract from the clarity of claim 121.

Given the foregoing demonstration of clarity and lack of indefiniteness in the foregoing claims 1, 6, 14, 70 and 121, the "failure to provide explicit antecedent basis for terms does not always render a claim indefinite", particularly where, as here, "the scope of a claim would be reasonably ascertainable by those skilled in the art."⁶⁶

3. **Claims 1 through 5, 11 through 13, 34, 65 through 69, 75, 92 through 100, 112 and 121 have been improperly rejected under the judicially created doctrine of obviousness-type double patenting based upon Appellant's divisional U.S. Patent No. 6,564,601.**

Claims 1 through 5, 11 through 13, 34, 65 through 69, 75, 92 through 100, 112 and 121 were rejected under the doctrine of obviousness type double patenting. This rejection is improper, and may not be sustained.

This rejection is based upon the judicial doctrine of obviousness-type double patenting. Recently, in *Geneva Pharmaceuticals, Inc. v. Glaxo SmithKline PLC*, 349 F.3d 1373, 68 USPQ2d 1865 (Fed.Cir. 21st November 2003), the Court announced a two part test governing when 35 U.S.C. § 121 bars an obviousness-type double patenting rejection. First, each claim of Appellant '601 patent appeared in the instant application. Second, the Examiner actually imposed, maintained, and continues to maintain a requirement under 37 CFR § 1.146 for an election of species, arguing that no generic claims were allowable. Subsequently, Appellant's

⁶⁶ *MPEP*, 8th Ed., Rev. 3 (August 2005), §2173.05(e), p. 2100-220.

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divisional application was filed to present claims which were indicated by the Examiner to be allowable in the above-captioned application, and those claims were passed to issue in Appellant's '601 patent.

Where, as here, the '601 patent is in conformance with 35 U.S.C. §121, and "was an application filed as a result of such a requirement ...", the resulting '601 patent "*shall not* be used as a reference ... in the Patent and Trademark Office ... against ... the original application."⁶⁷ The Examiner's requirement for restriction has never been withdrawn.⁶⁸ Accordingly, 35 U.S.C. §121 bars this rejection and the Board is respectfully requested to refuse to sustain this rejection of claims 1 through 5, 11 through 13, 34, 65 through 69, 75, 92 through 100, 112 and 121 under the doctrine of obviousness-type double patenting.

Claims 1 Through 5

In support of the rejection, the Examiner asserts that,

"the conflicting claims are not identical, they are not patentably distinct from each other because they merely recite like elements using different terminology and/or phraseology such as 'detent' instead of 'bar'. It is noted that claims 1 and 11 recite a 'detent', but not a 'stationary detent', and thus side bar detent of the patent reads on this limitation."

The Examiner has misinterpreted the basis for the Election of Species detailed in Paper No. 37,

⁶⁷ 35 U.S.C. §121.

⁶⁸ In *Geneva Pharmaceuticals, Inc.*, no requirement for restriction had ever been imposed. In the above-captioned application however, evidence of the actual and continued imposition of a requirement for restriction by the Examining staff in the instant application, Paper No. 08042005 dated on the 5th of August 2005, states that "claims 43-45, 73, 94 [sic] are withdrawn from consideration."

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set forth in the corrected Decision on Petition. Independent claim 1, by way of example, defines “an electrical operator ... obstructing said relative movement *by engaging a detent protruding from the cylinder.*” Appellant notes that claim 1 already defines a “side bar”, and separately defines an “electrical operator” as engaging a “detent protruding from the cylinder.” This feature and cooperation between constituent components is not present in the claims of Appellant’s later filed U.S. 6,564,601. The attention of the Board is directed to the embodiments of the species including Figure 1, where detents 106A, 107A are borne by cylinder 102, rather than by plug 101. None of claims 1 through 78 set forth in the Appellant’s later filed U.S. 6,564,601 define these features. The fact that one divisional patent is directed to a patentably distinct and independent species does not forestall the right of the Appellant under 35 U.S.C. §121 to claim one, or more, genius. Consequently, the Examiner’s assertion that the claims defer from those claims in Appellant ‘601 patent solely in terminology or phraseology is misplaced. These features are wholly absent from the claims set forth in Appellant’s ‘601 patent. Accordingly, and recognizing the inadequacy of the administrative record before the Board and the inability of Paper No. 53 to identify the features in any of the issued claims, this rejection may not be sustained.

Claims 11 Through 13

Independent claim 11 defines, *inter alia*, “an electrical operator ... obstructing said relative movement when said distal member at least partially surrounds” This feature defines the electrical operator with features such as those illustrated in Figure 1 by 106a, 107a and 108a. In contradistinction, the claims of Appellant’s ‘601 patent nowhere define these

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features and functional operations. The complete absence of any allegation in Paper No. 53 that any particular claims in '601 contain such features, is convincing evidence of absence of obviousness-type double patenting. The Board is respectfully requested to refuse to sustain this rejection.

Claim 34

Appellant notes that claim 34 defines a "side bar", and separately defines an "electrical operator" as engaging a "detent protruding from the cylinder." This feature and cooperation between constituent components is not present in the claims of Appellant's later filed U.S. 6,564,601. Moreover, Appellant's own work represented by his '601 patent can not serve as a basis for establishing obviousness; there is therefore, no evidence of record before the Board showing obviousness between any of the claims of Appellants' '601 patent and claim 34. The Board is respectfully requested to refuse to sustain this rejection.

Claims 65 Through 69

Claim 65, as well as dependent claims 66 through 69, among other distinctions, define "an electrical operator comprising an armature, said armature ... rotating around said longitudinal axis with said plug" This, among other features, is not present in the independent claims of Appellants' '601 patent. Appellant's own work represented by his '601 patent can not serve as a basis for establishing obviousness; there is therefore, no evidence of record before the Board showing obviousness of claims 65 through 69 over any of the claims of Appellants' '601 patent. The Board is respectfully requested to refuse to sustain this rejection.

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Claim 75

Claim 75, among other distinctions, defines "an electrical operator ... electrically operable to respond to said control signal by moving along a radial axis that is traverse to said radial plane" This feature of the elected specie, is not present any of the independent claims of Appellant's own work represented by his '601 patent, and Applicant's own work may not serve as a basis for establishing obviousness; there is no evidence of record before the Board showing obviousness of claim 75 over any of the claims of Appellants' '601 patent. The Board is respectfully requested to refuse to sustain this rejection.

Claims 92 Through 99

Claim 92, upon which claims 93 through 99 depend, is closest in text and language to claim 62 of Appellant's '601 patent. Unlike claim 62, rejected claim 92 defines a "bar interposed between said shell and said cylinder plug, while allowed claim 62 defines a "detent." Moreover, claim 92 had been pending for about twenty-one months in the above-captioned application when claim 62 and Appellant's '601 patent was filed on the 4th of February 2002. Given the circumstances under which claim 62 was filed, 35 U.S.C. §121 bars this rejection and the Board is respectfully requested to refuse to sustain this rejection of claim 92.

4. Claims 46 through 52, 54, 56, 64, 70, 76, 77, 90, 91, 105, 108, 109, 111, 113 through 116, and 119 through 121 are patentably distinguishable and allowable under 35 U.S.C. §103(a) over a proposed combination of Gokcebay, U.S. Patent No. 5,552,777 in view of Thordmark *et al.*, U.S. Patent No. 5,542,274 and Naveda, U.S. Patent No. 4,416,127.

Claims 46 through 52, 54, 56, 64, 70, 76, 77, 90, 91, 105, 108, 109, 111, 113 through

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116, 119, 120 were all rejected under 35 U.S.C. §103(a) as rendered obvious, and unpatentable, by the Examiner's proposed combination of Gokcebay U.S. 5,552,777 modified according to Thordmark U.S. 5,542,274 and Naveda U.S. 4,416,127. This proposed combination is improbable, is unsupported by any evidence of motivation in the record before the Board, and fails to provide a *prima facie* showing of obviousness; the Board is respectfully urged to refuse to sustain this rejection for the following reasons.

A. The Rejection Under 35 U.S.C. §103 Fails To Make A *Prima Facie* Showing Of Obviousness

According to MPEP 706.02(j), the following establishes a *prima facie* case of obviousness under 35 U.S.C. §103:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on Appellant's disclosure. *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Claims 46-52, 56, 64, 70, 76, 77, 90, 91, 105 and 119

First, although the record before the Board has recognized that the combination including Gokcebay '777 fails to either teach or suggest:

"a bar/detent which moves radially to the axis of the plug and the electronic operator having an electronic locking member which moves independently of the movement of the bar/detent which is

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reciprocated between a blocking and releasing position as a result of independent movement of the locking member."

The record subsequently concludes however, that:

"[i]t would have been obvious ... to replace the simple blocking element of Gokcebay with the multipart electrically actuated blocking element of Thordmark et al to thwart natural attempts to force system locks ... [i]t would have further been an obvious reversal of parts and change of size to select miniature logic circuitry and a miniature solenoid and locking member 11 such that the blocking mechanism fits with a conventional sized lock plug as taught by Gokcebay and Naveda."

Entirely ignored by the Examiner's proposed combination is that Appellant's claims 46 through 52 define "a bar borne by said plug and rotatable with said plug relative to said shell", while claim 56 defines "a shell containing a hollow recess ... [and] an elongate member interposed between said shell and said plug ... in reponse to a torque that is externally applied to said plug and causes rotation ... exiting said recess"⁶⁹ while a comparable feature is defined by dependent claim 119, and claim 64 defines "a sidebar ... to travel generally along a radial plane ... [and] an electrical operator ... moving in a different plane independently of said travel by said sidebar"⁷⁰ and claim 105 defines "orienting said side bar to travel along a plane ... [and]

⁶⁹ Despite the requirement of 37 CFR §1.104(b)(2) for identifying the "particular part" relied upon to support a rejection, Paper Nos. 39 and 53 are silent upon these details. It appears that in the proposed combination including the second "elongate member" 10, or even 11 of Thordmark '274, that second "elongate member" 10, or 11 must necessarily remain with the recess, or bore, provided by the outer shell of the lock in order for the cylinder plug to rotate. This is contrary to Appellant's claims, and prevents a true retro-fit of a lock cylinder without also a concomitant re-machining, or complete replacement of the outer shell. Moreover, this combination fails to meet the express language of claim 56.

⁷⁰ Again, Papers Nos. 39 and 53 pay no moment to the requirement of 37 CFR §1.104(b)(2) for identifying the "particular part" relied upon to support a rejection. In

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positioning said locking member to move on an axis that is approximately perpendicular to said plane."⁷¹ Moreover, claim 70 defines "a bar ... to travel generally along a radial plane ... [and] an electrical operator borne by said cylinder plug ... moving along a geometric construct *other than* to said radial plane"⁷² Even ignoring *arguendo* that the primary reference is singularly devoid of any structure for bearing a detent, sidebar or bar, and that the Examiner's proposed combination would impermissibly prevent the primary reference from operating in its intended mode of operation by obstructing the ability of the "block pin 38" of "small solenoid 36" of the primary reference to engage its cylinder shell 46, the Examiner's proposed combination lacks teaching or suggestion of claim 46's "bar borne by said plug and rotatable with said plug relative to said shell", claim 56's (and a similar feature defined by claim 119) "shell containing a hollow recess ... [and] an elongate member interposed between said shell and said plug ... in response to a torque that is externally applied to said plug and causes rotation ... exiting said recess"⁷³, claim 64's "sidebar ... to travel generally along a radial plane ... [and] an electrical

the proposed combination including Thordmark '274, the second "sidebar" 10 must necessarily move with the identical same plane as solenoid 17 (in Fig. 7) or motor 12 (in Figs. 3, 4 and 5), contrary to the express teaching of Appellant's claim 64.

⁷¹ In the proposed combination including Thordmark '274, the second "sidebar" 10 must necessarily move within the identical same plane as solenoid 17 (in Fig. 7) or motor 12 (in Figs. 3, 4 and 5), contrary to the express teaching of Appellant's claim 64.

⁷² In the proposed combination including Thordmark '274, the second "sidebar" 10 must necessarily move within the identical same plane as solenoid 17 (in Fig. 7) or motor 12 (in Figs. 3, 4 and 5), contrary to the express teaching of Appellant's claim 105.

⁷³ In the proposed combination including the second "elongate member" 10, or even 11 of Thordmark '274, that second "elongate member" 10, or 11 must necessarily remain with the recess, or bore, provided by the outer shell of the lock in order for the cylinder plug to rotate. This is contrary to Appellant's claims, and prevents a true retro-fit of

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operator ... moving in a different plane independently of said travel by said sidebar”,⁷⁴ and claim 70’s “bar ... to travel generally along a radial plane ... [and] an electrical operator borne by said cylinder plug ... moving along a geometric construct *other than* to said radial plane ...”; consequently the Examiner’s proposed combination fails to make a *prima facie* showing of obviousness as is required by the third criteria of the *MPEP* §706.02(j).⁷⁵

Second, in the Examiner’s proposed combination, the placement of a “detent”, “sidebar” or “elongate bar” between the solenoid of the primary reference and the cylinder shell would impermissibly prevent the primary reference from being operated in its intended mode of operation with its solenoid 36 moving a “blocking pin 38”⁷⁶ engaging⁷⁷ “a bore or recess 50”⁷⁸ in the cylinder shell; its is these critical features with “an elongate bar ... interposed between said shell and said cylinder plug” which are expressly defined by Appellant’s claims 76, 77, 90 and 91. Consequently, this rejection is based upon an impermissible modification of the

a lock cylinder without also a concomitant re-machining, or complete replacement of the outer shell. Moreover, this combination fails to meet the express language of claim 56.

⁷⁴ In the proposed combination including Thordmark ‘274, the second “sidebar” 10 must necessarily move within the identical same plane as solenoid 17 (in Fig. 7) or motor 12 (in Figs. 3, 4 and 5), contrary to the express teaching of Appellant’s claim 64.

⁷⁵ Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *MPEP* §706.02(j).

⁷⁶ Gockebay ‘777, column 6, line 46.

⁷⁷ Gockebay ‘777, column 6, lines 45 and 46, “ Fig 3, show[s] a bore or recess 50 into which the blocking pin 38 extends in the blocking position.”

⁷⁸ Column 6, line 49.

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primary reference, and may not be maintained.

Third, the earlier noted fact that the Examiner's proposed modification of the primary reference would prevent the primary reference from being operated in its intended mode of operation, is itself convincing *indicia* of the non-obviousness of these claims.⁷⁹

Fourth, there is no evidence of record for modifying the primary reference in the manner asserted by the Examiner, except through a hindsight reconstruction of the art in the light provided by Appellant alone. In the Examiner's proposed combination, only Thordmark '274 discloses a movable locking member cooperating with any electrical operator; that movable locking member 11, as well as "latching member 10", is however, borne by the cylinder shell, and not, as defined by Appellant's claims, borne by, or mounted upon, the plug. Naveda '127, which is a rather large case lock, in terms of the physical volume occupied by shell, or housing, of the lock in comparison to the primary reference, is utterly devoid of any cylinder plug, is bereft of a suggestion of a detent or sidebar, and contributes nothing to this proposed modification of the primary reference. In short, there is no evidence of record showing motivation for making the Examiner's proposed combination, and Naveda '127 does nothing to remedy these deficiencies noted in the primary and secondary references. The Federal Circuit has repeatedly emphasized that:

"[t]he test for obviousness is not whether the features of one reference may be bodily incorporated into another reference...

⁷⁹ The Examiner's proposed combination would impermissibly prevent the primary reference from operating in its intended mode of operation by obstructing the ability of the "block pin 38" of "small solenoid 36" of the primary reference to engage its cylinder shell 46.

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Rather, we look to see whether combined teachings render the claimed subject matter obvious." *In re Wood*, 599 F.2d 1032, 202 USPQ 171, 174 (CCPA 1979) (citing *In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549-50 (CCPA 1969); *In re Mapelsden*, 329 F.2d 321, 322, 141 USPQ 30, 32 (CCPA 1964).

Here, there is no actual teaching in the Examiner's proposed combination for shifting "a spring biased sidebar 10" anywhere; the primary reference does not require a sidebar and can not fit a sidebar between its blocking pin 38 and its recess 50 without interfering with functional operation; Thordmark '274 already has a "side-bar 7" which has no disclosed relation with its "electronic operator 12"; and Naveda '127 neither discloses nor indicates any need for a sidebar, whether biased or unbiased.⁸⁰ Absent the requisite evidence of motivation for making the Examiner's proposed combination, this rejection may not be sustained.⁸¹

Claims 46, 56, 64, 70, 76, 77, 90, 120 and 121

Independent claim 46 defines "a cylinder plug" with, among other features, "a bar borne by said plug ... and an electrical operator ... moving to accommodate said movement of said bar" Claims 56, 64, 70, 76, 77, 90, 120 and 121 use alternative language to define other

⁸⁰ The Examiner's reliance upon Naveda '127 as ostensibly teaching miniaturization is evidence of a misguided understanding of the relevant art: the structure of the case lock taught by Naveda '127 is necessarily huge, and substantially external to any cylinder component, when compared to the cylinder locks of Appellant and the primary reference.

⁸¹ To establish a *prima facie* case of obviousness, three basic criteria must be met: First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. ... The teaching or suggestion to make the claimed combination and the reasonable expectation of success *must both be found in the prior art and not based on Appellant's disclosure*. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Emphasis added.

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aspects of this feature. In contradistinction, the Examiner's proposed combination includes a primary reference which requires "a solenoid 36 which is effective *to retract* a blocking pin 38 when energized"⁸² in combination with Appellant's "bore or recess 50 into which the blocking pin extends in the blocking position."⁸³ The degree of completeness required by 37 CFR §1.104(b) in Paper No. 8 is unfortunately absent; there is no evidence of record explaining how the proposed combination can have "solenoid 36" respond to a data signal "by releasing said detent to move" as is required by Appellant's claim 46, when the primary reference teaches that "solenoid 36" response to application of an electrical current by *holding* "blocking pin 38" in a retracted position when solenoid 36 is "energized"? Despite Appellant's request in response to Paper No. 39 for clarification under 37 CFR §1.104(a)(b) and (c), no explanation has been forthcoming. Absent the requested clarification, this rejection may not be sustained.

Alternatively, if the Examiner has intended to assert that the proposed combination may be constructed with a wholesale substitution of "electrical operator 12, a movable electronic [*sic*] locking member 11" and latch 10 for the primary reference's "electrical operator 36 ... [and] member 38", the Examiner's proposed combination is flawed because it impermissibly prevents the primary reference from operating in its intended mode of operation with "a bore or recess 50 [drilled into, or preferable through cylinder shell 46] into which blocking pin 38 extends in the blocking position" (*i.e.*, to directly and securely engage the cylinder shell) and concomitantly impermissibly prevents the primary reference from retentively holding "blocking

⁸² Gockebay '777, column 5, lines 55, 56.

⁸³ Gockebay '777, column 6, lines 45 and 46.

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pin 38" in a retracted position when energized.⁸⁴ There is no evidence of record teaching this construction and concomitant modification of Gokcebay '777, except that provided by Appellant's claims alone among the art.⁸⁵ The mandate for completeness in the administrative record set forth 37 CFR §1.104(a), (b) and (c) has not been met here because Paper Nos. 39 and 53 fail to explain how the proposed combination might be constructed to preserve the teaching of the primary reference for "a bore or recess 50 [drilled into, or preferable through cylinder shell 46] into which blocking pin 38 extends in the blocking position" (i.e., to directly and securely engage the cylinder shell) and concomitantly impermissibly prevents the primary reference from retentively holding "blocking pin 38" in a retracted position when energized. Clarification was previously requested, but was not provided. Consequently, the record before the Board does not support this rejection. Refusal to sustain this rejection is respectfully requested.

Under 35 U.S.C. §103(a),

"combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's

⁸⁴ Under U.S. practice, these teachings of Gockebay '777 may not be ignored by the Examiner when constructing the proposed combination. According to MPEP §2141.02, "A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). Construction of the Examiner's proposed combination to eliminate these features of Gockebay '777 is improper under 35 U.S.C. §103(a).

⁸⁵ The Examiner's "obvious reversal of parts and change of size to select miniature logic circuitry and a miniature solenoid and locking member 11 such that the blocking mechanism fits with a conventional sized lock plug as taught by Gokcebay and Naveda" is fictitious and illusory, because there is no evidence of record which either teaches or suggest the "obvious reversal."

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disclosure as a blueprint for piecing together the prior art to defeat patentability. *In re Dembiczak*, 175 F.3d 994, 50 USPQ.2d 1614 (Fed. Cir. 1999).

Consequently, this alternative construction is untenable, not only because it impermissibly prevents the primary reference, as modified by the two secondary references, from operating in its intended mode of operation, but also because neither of the two secondary references provide the specific motivation to construct Appellant's "a plug" with, among other features, "a detent disposed between said plug and a cylinder ... an electrical operator borne by ... and rotating with said plug ... releasing said detent to move" Given this failure of a *prima facie* requisite showing of the obviousness under the criteria of §706.02(j) of the *Manual*,⁸⁶ the Board is respectfully requested to refuse to sustain this rejection.

Claim 46

Claim 46 was rejected under 35 U.S.C. §103(a) as rendered obvious by proposed combination of Gokcebay '777 modified according to the Thordmark U.S. 5,542,274 in view of Naveda U.S. 4,416,127. Appellant respectfully traverses this rejection for the following reasons.

First, the lock defined by claim 46 has a "bar borne by said plug ... interposed between said shell and said cylinder plug to reciprocate generally along a radial plane" in combination

⁸⁶ To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. ... The teaching or suggestion to make the claimed combination ... *must ... be found in the prior art and not based on Appellant's disclosure.* *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

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with "an electrical operator ... obstructing movement of said bar ... in response to a first state of said control signal and by moving within a second and different plane not coextensive with said radial plane in response to application of said control signal" The Examiner neglected to explain how movement in different planes could be obtained by the proposed combination; in fact, all movement in the proposed combination exists within the same plane. That is, how can the Examiner's proposed combination be configured so that moveable coil 17 and blocking element 11 of Thordmark '274 move along non-aligned planes, a feature that provides a mechanical advantage and heightened security that is not available with the proposed combination. Accordingly, there is no *prima facie* showing of obviousness, and claim 46 is readily patentably distinguishable over the prior art.

Second, and as earlier noted, Appellant's lock defined by claim 46 has a "bar borne by said plug ... interposed between said shell and said cylinder plug to reciprocate generally along a radial plane" in combination with,

"an electrical operator ... obstructing movement of said bar ... in response to a first state of said control signal and by moving within a second and different plane not coextensive with said radial plane in response to application of said control signal"

These features are wholly absent from the Examiner's proposed combination because the modification of Gokcebay '777 made by the Examiner has a "latching element 10, therewith enabling the latching element [10 of the proposed combination] to be pressed *radially outwards as the plug 3 is turned with the key 4.*" Thordmark '274, col. 5, lines 24-26. Whether by some force of magic or by simple hindsight reconstruction of the art, if moving coil 17 is somehow

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incorporated into cylinder plug 24 of Gokcebay '777, that same radially outward motion will remain as a constant. The fact that latching member 10 can not both travel *radially outwardly* as the cylinder plug rotates as is taught by the Examiner's proposed combination and be carried by the cylinder plug as the plug rotates as dis defined by Appellant's claim 46, prevents the Examiner's proposed combination from providing Appellant's "*bar borne by said plug ... interposed between said shell and said cylinder plug to reciprocate generally along a radial plane ...*" This difference is not trivial and must be considered in determining obviousness *vel non* because it is this difference that enables Appellant's bar to be carried with the cylinder plug and to cooperate with another locking mechanism carried by the cylinder plug. The Examiner's combination can no provide this advantage. Accordingly, claim 46 is patentably distinguishable and allowable.

Claims 14 and 43

The record before the Board demonstrates that the Examining Staff has impermissibly neglected to examine "the subject matter" of claims 14 and 43 "as a whole" as required under the first paragraph of 35 U.S.C. §103. Specifically, the secondary locking mechanism of both Gokcebay '777 and Thordmark '274 operate wholly; completely and independently of their respectively pin tumblers and side tumblers, while Naveda '127 discloses but a single mechanism devoid of any secondary locking feature; consequently, the proposed combination of art can not be interpreted as teaching Appellant's "elongate member" that provides "simultaneously engagement of said cylinder and said plug" in combination with "electrical operator" that is disposed to maintain "said simultaneously engagement" provided by the

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elongate member. Neither the solenoid 36 and pin 38 of the primary reference nor the coil 17 of the secondary reference may be said to maintain Appellant's simultaneous engagement provided by the elongate member between the cylinder and the plug. There is no *prima facie* showing of obviousness. It is this cooperation between the elements of Appellant's structure that has resulted in a compound mechanism that is both compact and reliable with the electrical operator reinforcing the locking provided by the apparatus. In view of these and other distinctions, as well as the noted advantages flowing from those distinctions, the Examiner's proposed combination improperly fails to consider the "subject matter as a whole" and is required by 35 U.S.C. §103, and the rejection must be withdrawn.

As was earlier noted, both the primary and secondary references rely upon bitted keys and the corresponding pin tumblers to provide their primary locking functions. As was also earlier noted, with the exception of Naveda '127 which has but a single locking mechanism, both of those primary locking functions are structurally independent of the "secondary locking 'high security' mechanical features" (see Gokcebay '777, col. 6, lines 55, 56). The Examiner's comments under 37 C.F.R. §1.104(c)(2) tend to become rambling and fail to clearly designate "the particular part relied on" in the three references that form the proposed combination. To the extent that the Examiner proposes to place the moving coil 17 and armature 18 of Thordmark '274 into the plug of Gokcebay '777 in accordance with an obscure and unidentified teaching of Naveda '127, moving coil 71 and armature 18 will surely displace the "conventional pin tumbler mechanical bittings" of Gokcebay (see Gokcebay '777, col. 6, line 62) from the cylinder plug and concomitantly, impermissibly destroy the ability of the primary reference to

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rely upon those “conventional pin tumbler mechanical bittings” as the primary locking mechanical feature; this is an improper combination under 35 U.S.C. §103 and may not be relied upon to support an obviousness rejection.

To the extent that the Examiner intends to have moveable coil 17 and blocking element 11 of Thordmark '274 in a radial orientation in the proposed combination, that configuration will simply replace solenoid 36 and blocking pin 38 of the primary reference because moveable coil 17 and blocking element 11 travel together. Moreover, blocking element 11 has no useful function in such a configuration. Furthermore, this configuration will still not meet the several features of claims 14 and 43 that are noted in the foregoing paragraphs, and the Examiner's reliance upon Naveda '127 will not remedy these deficiencies.

Claims 46 through 52, 54, 56, 64, 70, 76, 77, 90, 91, 105, 108, 109, 111, 113 through 116, 119, 120

The rejection of claims 46 through 52, 54, 56, 64, 70, 76, 77, 90, 91, 105, 108, 109, 111, 113 through 116, 119, 120 as rendered obvious, and unpatentable over the Examiner's proposed combination is unsustainable on the record before the Board.

First, the combination proposed by the Examiner would impermissibly destroy the ability of the primary reference to operate in its intended mode of operation. Gokcebay '777 expressly teaches a radially oriented solenoid 36 and blocking pin 38, together with the pin tumbler relied upon by the Examiner.⁸⁷ The alternative embodiment illustrated by Figure 7 of Thordmark '274

⁸⁷ Gokcebay '777, column 6, lines 61 and 62.

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that is relied upon by the Examiner includes side tumblers 5 and side bar 7 mounted in the cylinder plug 3, while the coil 17 and the blocking element 11 are mounted within the shell rather than within the cylinder plug. Gokcebay '777 however, expressly teaches in col. 3, beginning with line 2, that all of electronics and hardware are "contained in the cylinder plug", and that nothing is "required outside of the lock cylinder" aside

"from a small recess or bore which is provided in the cylinder shell."

This is a critical distinction because the combination proposed by the Examiner relies upon the hardware and electronics of Thordmark '274 that are necessarily housed within the shell, rather than within the cylinder plug as required by the primary reference. Moreover, that combination eliminates the small recess or bore of the primary reference, which the primary reference relies upon to assure a positive locking by allowing "for secondary locking high security mechanical features, generally located in side of the cylinder plug." See Gokcebay '777 at col. 6, beginning with 55. Consequently, the Examiner's proposed combination fails to provide Appellant's "electronically powered drive mechanism located within the barrel *and cooperating with the* electromechanical locking member to selectively move the locking member from the barrel blocking position" In short, both the simplicity and the secondary locking of the primary reference are removed by the Examiner's proposed combination.

Second, it is unclear whether the Examiner's proposed combination relies upon the pin tumblers (not shown, col. 6, lines 61-62) of Gokcebay '777 or the "latching element 10" of Thordmark '274, to meet Appellant's pending claims. An analysis of the Examiner's proposed

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combination incorporating the pin tumblers (not shown, col. 6, lines 61-62) of Gokcebay '777 is discussed in the preceding paragraph. To the extent that the Examiner incorporates the "latching element 10" of Thordmark '274 to meet the language of Appellant's pending claims, there are two structural impediments which make the Examiner's proposed combination untenable. First, claim 90 defines a structure with "a side bar ... [and] an electronically powered drive mechanism located within the barrel *and cooperating with* the electromechanical locking member to selectively move the locking member from the barrel blocking position to the non-barrel blocking position in which the side bar moves out of the cavity ..." and "an electromechanical locking member disposed within the barrel member ... positionable to permit the side bar to engage the locking member in a non-barrel blocking position..." In contradistinction, in the Examiner's proposed combination, coil 17, blocking element 11 and latching element 10 of Thordmark '274 must reside in the cylinder shell in order to accommodate the existence of the top tumblers and side tumblers 5 for top code 4a and side code 4b that, as shown by Figs. 1 and 2, extend over substantially the entire axial length of plug 3. Second, coil 17, blocking element 11 and latching element 10 of Thordmark '274 are mounted within an axial recess. Wholly absent from the art relied upon by the Examiner to make this proposed combination is any teaching or suggestion of how to alter the configuration of coil 17, blocking element 11 and latching element 10 of Thordmark '274 (that form the "secondary locking high security mechanical features" required by Gokcebay '777) to fit within the mass of plug 3 without displacing the combination of the keyway and the primary locking mechanism (formed by the top tumblers and side tumblers 5 for top code 4a and side code 4b). Appellant submits

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that any miniaturization of the "secondary locking high security mechanical features" that may be required by Gokcebay '777) in order to fit within the mass of plug 3 would necessarily diminish the ability of latching element 10 to resist "shear forces at the interface between plug and lock cylinder."⁸⁸ This miniaturization of the configuration of coil 17, blocking element 11 and latching element 10 of Thordmark '274 in order to mount these components within the plug of Gokcebay '777 essentially reduces latching element 10 to nothing more than "a latching pin." This is hardly an enhancement of security as is asserted by the Examiner. It should be noted however, that the Examiner's proposed combination incorporating Thordmark '274 expressly warns that such structures as "latching pins or like devices will fracture even when only a relatively moderate force is used on the lock, therewith enabling the lock to be opened."⁸⁹ In short, the Examiner's proposed combination is a deliberate and improper weakening of the "high security" demanded by Gokcebay '777 of such secondary locking mechanical features.⁹⁰

The suggestions of Naveda '127 about the "size or geometric shape" of a key,⁹¹ and the presence of an "electromagnet" that is "located in the receiver or alternatively in the body of the key",⁹² are immaterial to these issues raised by the Examiner's miniaturization of the configuration of coil 17, blocking element 11 and latching element 10 of Thordmark '274 in

⁸⁸ See Thordmark '274, at column 2, lines 54-57.

⁸⁹ Thordmark '274, col. 2, lines 57-61.

⁹⁰ See Gokcebay '777, at column 6, lines 55-56.

⁹¹ Naveda '127, the "size or geometric shape" of a key (col. 4, line 60).

⁹² Naveda '127, column 9, lines 22-25.

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order to mount these components within the plug of Gokcebay '777 because Naveda '127 teaches nothing about Appellant's barrel member. Moreover, the "electromagnetic 36" of Naveda '127 is structurally and functionally different from Appellant's "electronically powered drive mechanism." Incorporation of "electromagnetic 36", which is not small in size, into the plug of Gokcebay '777 will remedy none of the deficiencies in the Examiner's proposed combination noted earlier in this response.

In view of the fact that both the primary and secondary references teach away from such diminution of security, and nothing in Naveda '127 neither teaches nor suggests how to accommodate the presence of both the combination of the keyway 26 (of Gockebay '777) and the primary locking mechanism (formed for example, by the top tumblers and side tumblers 5 for top code 4a and side code 4b) and the configuration of coil 17, blocking element 11 and latching element 10 of Thordmark '274. In contradistinction, Appellant's structure alone allows for a sidebar that may be axially extended over the entire length of the junction between the shell and the cylinder plug, a structure that, unlike the Examiner's proposed miniaturization, is better able to resist "shear forces at the interface between plug and lock cylinder." See Thordmark '274, at column 2, lines 54-57. Moreover, the Examiner's proposed combination makes no provision for either "side bar cooperating between the shell and the barrel ... wherein at least one electromechanical locking member is disposed within the barrel and is positionable in a barrel blocking position" as defined by claim 85 or the "locking member including a groove" that is "disposed within the recess of the barrel member" defined by Appellant's claim 89.

In short, formation of the axial recess in cylinder plug 24 of Gokcebay '777 necessary to

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accommodate the configuration of the secondary locking mechanism of coil 17, blocking element 11 and latching element 10 of Thordmark '274 would essentially cleave plug 24 in two, with the T-shaped element 20 on one side of the cleave and latching element 10 protruding from the other side of that cleave, while any miniaturization of the secondary locking mechanism would be contrary to the express teachings of Thordmark '274 and would diminish the security which both Gokcebay '777 and Thordmark '274 teach; under 35 U.S.C. §103 the Examiner can not alone modify the structures taught by the primary and secondary references in a manner that would defeat the expressly articulated goal of those references. These deficiencies in the Examiner's proposed combination, together with the enhancement of the security provided thereby, are evidence of the non-obviousness of the lock defined by the structure of claims 85 through 89. Reversal of this rejection is therefore required.

There is simply neither basis nor motivation for making the combination proposed by the Examiner except as an impermissible hindsight reconstruction of the art in the light provided only by Appellant's claims. Thordmark '247 expressly denigrates the use of "radially directed elements" such as that taught by Gokcebay '777,⁹³ and expressly states that his structure "is to eliminate the aforesaid drawbacks" (see Thordmark '274, col. 2, lines 64-65) that are attendant upon those "radially directed elements" while Naveda '127 is completely silent on the efficacy of structures such as those taught by the primary reference. Neither the express limitations of Appellant's claims nor this express denigration of the Examiner's proposed combination may be ignored in a determination of obviousness *vel non* because this denigration by the secondary

⁹³ See Thordmark '274, col. 2, lines 50-60.

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reference expressly negates the requisite motivation necessary to make the Examiner's proposed combination under 35 U.S.C. §103. Accordingly, the rejection is improper and can not stand.

Claims 47, 48 and 51

Dependent claims 47, 48 and 51, further define the structure of parent claim 46, albeit in terms of the operator. Contrary to the Examiner's assertions, neither Naveda '127 nor Thordmark '274 nor Gockebay '777 advocates both insertion of an electrical operator into the cylinder plug and some interaction between that plug borne operator and a bar, elongated member or sidebar that is able to make simultaneous engagement of both the shell and cylinder plug, because:

- Gockebay '777 teaches only insertion of a solenoid within the cylinder,
- Gockebay '777 is wholly devoid of any bar (other than the armature 18 that is itself a part of solenoid 17),
- Gockebay '777 is wholly devoid of any bar that provides any type of engagement between the shell and cylinder,
- Thordmark '274 teaches nothing about insertion of any operator within the cylinder,
- both Gockebay '777 and Thordmark '274 require not only complete replacement of the cylinder, but major alteration of the shell in order to accommodate a retrofit,
- both Gockebay '777 and Thordmark '274 are utterly incapable of providing any interaction with their primary locking mechanical features, and
- Naveda '127 is singularly devoid of any teaching of a cylinder plug and discloses no primary mechanical locking mechanism as is required by both Gockebay '777 and Thordmark

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'274,

- Naveda '127 fails to describe how traveling coil 17, armature 18 and latching element 10 of Fig. 7 of Thordmark '274 incorporated into the plug of Gockebay '777.

In contradistinction, Appellant's claims define a structure with an electrical operator borne by the cylinder plug, a member moving in response to the operator, and interaction between the operator and a bar interposed between the shell and the cylinder plug. The fact that the art is singularly and uniformly silent on this small advance may not be ignored in any determination of the obviousness *vel non* based upon "the differences between the subject matter sought to be patented and the prior art ..."⁹⁴

Claim 49

Unlike the structures found in the Examiner's proposed combination with separate and independent mechanical and electromagnetic locking mechanisms, claim 49 defines a structure with an integration of the structure as well as the operation of "obstructing movement" of the cylinder plug relative to the shell, a feature neither taught nor illustrated by the Examiner's proposed combination. Consequently, the administrative record fails to provide a *prima facie* showing of obviousness.

Claim 56

Claim 56 was rejected under 35 U.S.C. §103(a) as rendered obvious by proposed combination of Gokcebay '777 modified according to the Thordmark U.S. 5,542,274 in view of Naveda U.S. 4,416,127. Appellant respectfully traverses this rejection for the following reasons.

⁹⁴ 35 U.S.C. §103(a).

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The lock defined by claim 56 has “an elongate member interposed between said shell and said plug to travel generally along a radial direction” in combination with “an electrical operator responding to said control signal by moving in a second direction not aligned with said radial direction ... obstructing said travel” Wholly absent from the Examiner’s proposed combination is any teaching of how an electrical operator formed by moveable coil 17 and blocking element 11 of Thordmark ‘274 could be made to travel in any direction that is not aligned with said radial direction.” Moreover, the Examiner’s comments have neglected to explain how movement in different planes could be obtained by the proposed combination; in fact, all movement in the proposed combination exists only within the same plane. Accordingly, there is no *prima facie* showing of obviousness, and claim 56 is readily patentably distinguishable over the prior art.

Claims 64, 65, 70, 75, 76 and 77

Independent claims 64, 65, 70, 75, 76 and 77 were rejected under 35 U.S.C. §103(a) as rendered obvious by proposed combination of Gokcebay '777 modified according to the Thordmark U.S. 5,542,274 in view of Naveda U.S. 4,416,127. Appellant respectfully traverses this rejection for the following reasons.

First, the lock defined by claim 64 uses “a bar interposed between said shell and said cylinder plug to travel generally along a radial plane” in combination with “an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to said control signal by moving independently of said travel by said bar, between one of a first orientation providing obstruction of said travel and a second and different

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orientation accommodating *said travel ...*.” As defined by claim 65, Appellant’s lock uses “a bar interposed between said shell and said cylinder plug to travel generally along a radial plane” in combination with “an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to said control signal by moving in a second direction not aligned with said radial direction ... obstructing *said travel ...*.” Claim 70 uses “a bar interposed between said shell and said cylinder plug to travel generally along a radial plane” in combination with “an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to said control signal by moving along a geometric construct other than to said radial plane between one of a first orientation providing obstruction of said travel and a second and different orientation accommodating said travel” Claim 75 uses “a bar interposed between said shell and said cylinder plug to travel generally along a radial plane” in combination with “an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to said control signal by moving along a radial axis that is transverse to said radial plane between a first orientation providing obstruction of said travel and a second and different orientation accommodating said travel” Claim 76 uses “an elongate bar exhibiting a greatest longitudinal dimension along a second axis that extends transversely to said first base and to said second base, said bar being interposed between said shell and said cylinder plug to travel generally along a radial axis that is transverse to said second axis ... “ in combination with “an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to said control signal by moving along said radial

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axis between one of a first orientation providing obstruction of *said travel* and a second and different orientation accommodating *said travel* ...” Claim 77 however, uses “an elongate bar exhibiting a greatest longitudinal dimension along a second axis that extends transversely to said first base and to said second base, said bar being interposed between said shell and said cylinder plug to travel generally along a radial axis that is radial to said cylinder plug and transverse to said second axis, between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess ...” together with “an electrical operator borne by said cylinder plug and rotatable with said plug ... to respond to a control signal by moving between one of a first orientation providing obstruction of *said travel* ...” Not only does the Examiner’s proposed combination fail to meet these varied express geometric definitions, but Appellant’s interaction between an electrical operator borne by and rotatable with the cylinder plug and the travel of the bar interposed between the shell and the cylinder plug is not found in the prior art, either taken as individual references or in the combination proposed by the Examiner simply because all of the references relied upon by the Examiner uniformly restrict movement to within a single plane. The substitution of moveable coil 17, blocking element 11 and latching element 10 of Thordmark ‘274 for solenoid 36 and blocking pin 38 of Gokcebay ‘777 necessary to construct the Examiner’s proposed combination will prevent the proposed combination from achieving Appellant’s travel and orientation. Consequently, the Examiner has failed to make a *prima facie* showing of obviousness. It is this difference in geometric movement, together with the defined inter-cooperation that advantageously endow Appellant’s embodiments with the enhanced security of the locking function that is available

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with neither the primary or either of the two secondary references. Independent claims 64, 65, 70, 75 and 76 are therefore patentably distinguishable, and allowable under 35 U.S.C. §103(a).

Second, the sole motivation provided in the art for the combination proposed by the Examiner is an impermissible reconstruction of the art in the light provided by Appellant alone. This, by itself, is convincing indicia of the patentability of claims 64, 65, 70, 75 and 76 under 35 U.S.C. §103.

Third, ostensibly the prior art relied upon by the Examiner endeavors to provide a lock that may be easily retrofitted. Gokcebay '777 however, requires that a bore 50 be drilled within the shell of the existing lock while Thordmark '274 requires that a separate V-shaped groove 3c that is spaced-apart and distinct from the slot for sidebar 7, be machined within the cylinder, and that the entire recess shown in Figure 1 be machined into the shell. Contrary to the Examiner's assertions, neither Naveda '127 nor Thordmark '274 nor Gockebay '777 advocates both insertion of an electrical operator into the cylinder plug and some interaction between that plug borne operator and a bar, elongated member or sidebar that is able to make simultaneous engagement of both the shell and cylinder plug, because:

- Gockebay '777 teaches only insertion of a solenoid within the cylinder,
- Gockebay '777 is wholly devoid of any bar (other than the armature 18 that is itself a part of solenoid 17),
- Gockebay '777 is wholly devoid of any bar that provides any type of engagement between the shell and cylinder,
- Thordmark '274 teaches nothing about insertion of any operator within the cylinder,

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- both Gockebay '777 and Thordmark '274 require not only complete replacement of the cylinder, but major alteration of the shell in order to accommodate a retrofit,
- both Gockebay '777 and Thordmark '274 are utterly incapable of providing any interaction with their primary locking mechanical features, and
- Naveda '127 is singularly devoid of any teaching of a cylinder plug and discloses no primary mechanical locking mechanism as is required by both Gockebay '777 and Thordmark '274,
- Naveda '127 fails to describe how traveling coil 17, armature 18 and latching element 10 of Fig. 7 of Thordmark '274 incorporated into the plug of Gockebay '777.

In contradistinction, Appellant's claims define a structure with an electrical operator borne by the cylinder plug, a member moving in response to the operator, and interaction between the operator and a bar, elongate member or sidebar interposed between the shell and the cylinder plug. Although these differences may appear to be but a small advance in the art, the advantages flowing from these differences are substantial. For example, only Appellant's claims define a structure with an electronic operator borne by the cylinder plug that interacts with a sidebar, elongate member or bar, and that consequently, is able to advantageously both retrofit an installed lock by the expedient of replacing only the cylinder plug *without any* alteration of the shell and to *interact or cooperate with* an existing sidebar of a primary mechanical locking mechanism that is positioned between the shell and plug. The fact that both Gockebay '777 and Thordmark '274 are concerned with retrofitting of existing locks, a fact noted by the Examiner, and that both references require modification of the shell of the lock in order to complete that

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retrofitting, while Appellant alone provides a cylinder plug that may work with an existing sidebar and may be retrofit without any modification of the shell is a difference between the prior art and the structure defined by the pending claims that prevents the subject matter as a whole from being obviousness under 35 U.S.C. §103. This deficiency in the Examiner's proposed combination is not remedied by Naveda '127. Moreover, this deficiency is highlighted by the fact that Thordmark '274 clearly avoids either teaching or suggestion of any interaction or cooperation between sidebar 7 and coil 17.

This interaction with the existing sidebar beneficially enhances the security provided by Appellant's lock. Neither Gockebay '777, Thordmark '274 nor Naveda '127, nor the Examiner's proposed combination of Gockebay '777, Thordmark '274 and Naveda '127 are able to provide these advantages. Moreover, the Examiner's proposed combination is incomplete and fails to make a *prima facie* showing of obviousness; how, for example, is the traveling coil 17, armature 18 and latching element 10 of Fig. 7 of Thordmark '274 incorporated into the plug of Gockebay '777? No details of such a combination are provided by the Examiner's proposed combination. Accordingly, in view of these differences between the pending claims and the prior art, "the subject matter as a whole" can not be found to be rendered obvious under 35 U.S.C. §103. In short, the Examiner has unfairly sought to limit the scope of coverage to which Appellant is entitled by reconstructing the art in an effort to meet the terms of Appellant's claims when none of that art suggests such a simple modification of the art as Appellant's electrical operator being both borne by and rotating with the cylinder plug *and* operating to block the travel of a sidebar. Accordingly, reversal of this rejection is required.

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Claim 90

Independent claims 90, which Appellant copied from claim 19 of the Field U.S. Patent No. 5,839,307, was rejected under 35 U.S.C. §103(a) as rendered obvious by proposed combination of Gokcebay '777 modified according to the Thordmark U.S. 5,542,274 in view of Naveda U.S. 4,416,127. Appellant respectfully traverses this rejection for the following reasons.

First, Appellant notes that the Examiner improperly asserted that independent claim 90, copied from claim 19 of Field '307 patent, was withdrawn from consideration, even though claim 90 defines the salient features of Appellant's elected species. Moreover, the field of search is co-extensive with the elected species. Consideration of claim 90 is therefore required.

Second, the combination proposed by the Examiner would impermissibly destroy the ability of the primary reference to operate in its intended mode of operation. Gokcebay '777 expressly teaches a radially oriented solenoid 36 and blocking pin 38, together with the pin tumbler relied upon by the Examiner, mentioned in col. 6, lines 61 and 62. The alternative embodiment illustrated by Figure 7 of Thordmark '274 that is relied upon by the Examiner includes side tumblers 5 and side bar 7 mounted in the cylinder plug 3, while the coil 17 and the blocking element 11 are mounted within the shell rather than within the cylinder plug. Gokcebay '777 however, expressly teaches in col. 3, beginning with line 2, that all of electronics and hardware are "contained in the cylinder plug", and that nothing is "required outside of the lock cylinder" aside "from a small recess or bore which is provided in the cylinder shell." The combination proposed by the Examiner relies upon the hardware and electronics of Thordmark '274 that are necessarily housed within the shell, rather than within the cylinder plug as required.

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by the primary reference. Moreover, that combination eliminates the small recess or bore of the primary reference, which the primary reference relies upon to assure a positive locking by allowing "for secondary locking high security mechanical features, generally located in side of the cylinder plug." See Gokcebay '777 at col. 6, beginning with 55. Consequently, the Examiner's proposed combination fails to provide Appellant's "electronically powered drive mechanism located within the barrel *and cooperating with* the electromechanical locking member to selectively move the locking member from the barrel blocking position" In short, both the simplicity and the secondary locking of the primary reference are removed by the Examiner's proposed combination.

Third, it is unclear whether the Examiner's proposed combination relies upon the pin tumblers (not shown, col. 6, lines 61-62) of Gokcebay '777 or the "latching element 10" of Thordmark '274, to meet Appellant's pending claims. An analysis of the Examiner's proposed combination incorporating the pin tumblers (not shown, col. 6, lines 61-62) of Gokcebay '777 is discussed in the preceding paragraph. To the extent that the Examiner incorporates the "latching element 10" of Thordmark '274 to meet the language of Appellant's pending claims, there are two structural impediments which make the Examiner's proposed combination untenable. First, claim 90 defines a structure with "a side bar ... [and] an electronically powered drive mechanism located within the barrel *and cooperating with* the electromechanical locking member to selectively move the locking member from the barrel blocking position to the non-barrel blocking position in which the side bar moves out of the cavity ..." and "an electromechanical locking member disposed within the barrel member ... positionable to permit

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the side bar to engage the locking member in a non-barrel blocking position... ." In contradistinction, in the Examiner's proposed combination, coil 17, blocking element 11 and latching element 10 of Thordmark '274 must reside in the cylinder shell in order to accommodate the existence of the top tumblers and side tumblers 5 for top code 4a and side code 4b that, as shown by Figs. 1 and 2, extend over substantially the entire axial length of plug 3. Second, coil 17, blocking element 11 and latching element 10 of Thordmark '274 are mounted within an axial recess. Wholly absent from the art relied upon by the Examiner to make this proposed combination is any teaching or suggestion of how to alter the configuration of coil 17, blocking element 11 and latching element 10 of Thordmark '274 (that form the "secondary locking high security mechanical features" required by Gokcebay '777) to fit within the mass of plug 3 without displacing the combination of the keyway and the primary locking mechanism (formed by the top tumblers and side tumblers 5 for top code 4a and side code 4b). Appellant submits that any miniaturization of the "secondary locking high security mechanical features" that may be required by Gokcebay '777) in order to fit within the mass of plug 3 would necessarily diminish the ability of latching element 10 to resist "shear forces at the interface between plug and lock cylinder."⁹⁵ This miniaturization of the configuration of coil 17, blocking element 11 and latching element 10 of Thordmark '274 in order to mount these components within the plug of Gokcebay '777 essentially reduces latching element 10 to nothing more than "a latching pin." This is hardly an enhancement of security as is asserted by the Examiner. It should be noted however, that the Examiner's proposed combination incorporating Thordmark '274 expressly

⁹⁵ See Thordmark '274, at column 2, lines 54-57.

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warns that such structures as "latching pins or like devices will fracture even when only a relatively moderate force is used on the lock, therewith enabling the lock to be opened."⁹⁶ In short, the Examiner's proposed combination is a deliberate and improper weakening of the "high security" demanded by Gokcebay '777 of such secondary locking mechanical features.⁹⁷

The suggestions of Naveda '127 about the "size or geometric shape" of a key,⁹⁸ and the presence of an "electromagnet" that is "located in the receiver or alternatively in the body of the key",⁹⁹ are immaterial to these issues raised by the Examiner's miniaturization of the configuration of coil 17, blocking element 11 and latching element 10 of Thordmark '274 in order to mount these components within the plug of Gokcebay '777 because Naveda '127 teaches nothing about Appellant's barrel member. Moreover, the "electromagnetic 36" of Naveda '127 is structurally and functionally different from Appellant's "electronically powered drive mechanism." Incorporation of "electromagnetic 36", which is not small in size, into the plug of Gokcebay '777 will remedy none of the deficiencies in the Examiner's proposed combination noted earlier in this response.

In view of the fact that both the primary and secondary references teach away from such diminution of security, and nothing in Naveda '127 neither teaches nor suggests how to accommodate the presence of both the combination of the keyway 26 (of Gockebay '777) and

⁹⁶ Thordmark '274, col. 2, lines 57-61.

⁹⁷ See Gokcebay '777, at column 6, lines 55-56.

⁹⁸ Naveda '127, the "size or geometric shape" of a key (col. 4, line 60).

⁹⁹ Naveda '127, column 9, lines 22-25.

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the primary locking mechanism (formed for example, by the top tumblers and side tumblers 5 for top code 4a and side code 4b) and the configuration of coil 17, blocking element 11 and latching element 10 of Thordmark '274. In contradistinction, Appellant's structure alone allows for a sidebar that may be axially extended over the entire length of the junction between the shell and the cylinder plug, a structure that, unlike the Examiner's proposed miniaturization, is better able to resist "shear forces at the interface between plug and lock cylinder." See Thordmark '274, at column 2, lines 54-57. Moreover, the Examiner's proposed combination makes no provision for either "side bar cooperating between the shell and the barrel ... wherein at least one electromechanical locking member is disposed within the barrel and is positionable in a barrel blocking position" as defined by claim 85 or the "locking member including a groove" that is "disposed within the recess of the barrel member" defined by Appellant's claim 89.

In short, formation of the axial recess in cylinder plug 24 of Gokcebay '777 necessary to accommodate the configuration of the secondary locking mechanism of coil 17, blocking element 11 and latching element 10 of Thordmark '274 would essentially cleave plug 24 in two, with the T-shaped element 20 on one side of the cleave and latching element 10 protruding from the other side of that cleave, while any miniaturization of the secondary locking mechanism would be contrary to the express teachings of Thordmark '274 and would diminish the security which both Gokcebay '777 and Thordmark '274 teach; under 35 U.S.C. §103 the Examiner can not alone modify the structures taught by the primary and secondary references in a manner that would defeat the expressly articulated goal of those references. These deficiencies in the Examiner's proposed combination, together with the enhancement of the security provided

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thereby, are evidence of the non-obviousness of the lock defined by the structure of claim 90.

Reversal of this rejection is therefore required.

Claim 90

Independent process claims 90 defines a process of "retrofitting a mechanical cylinder lock to form an electromechanical cylinder lock". The Examiner's proposed combination requires a "recess or bore 50" in order to meet the express teachings of the primary reference, namely that:

"this bore, recess or groove 50 is the only modification *required* in the entire lock ... the bore or recess 50 is *easily formed* by drilling a hole through the cylinder shell or forming an internal recess or groove on the inside surface of the cylinder shell" ¹⁰⁰

Appellant's process neither uses nor requires a modification of the shell to accommodate the process of rejected claim 90. Recognizing that the Examiner's modification of the primary reference in a manner which prevents the operation of the primary reference in its intended mode, is impermissible, not only is there no evidence of motivation in the record to support the Examiner's proposed process, but the fact that Appellant's process advantageously eliminates this awkward step of first removing, and then drilling the cylinder shell, if further evidence of non-obviousness of the processes of claim 90. Given this evidence, and the advantageous results flowing therefrom, claim 90 is allowable over the prior art.

Claim 91

Claim 91 was rejected under 35 U.S.C. §103(a) as rendered obvious by the proposed

¹⁰⁰ Gockebay '777, column 46 - 51; column 6, lines 45 and 46 states that "Fig 3, show[s] a bore or recess 50 into which the blocking pin 38 extends in the blocking position."

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combination of Gokcebay '777 modified according to the Thordmark U.S. 5,542,274 in view of Naveda U.S. 4,416,127. Appellant respectfully traverses this rejection for the following reasons.

First, the lock defined by claim 91 uses "a bar interposed between said shell and said cylinder plug to reciprocate generally along a radial plane" in combination with "an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to said control signal by moving independently of said bar between a first orientation providing obstruction of *said reciprocation* by said bar and a second and different orientation removing said obstruction." The sole motivation provided in the art for the combination proposed by the Examiner is an impermissible reconstruction of the art in the light provided by Appellant alone. This, by itself, is convincing indicia of the patentability of claims 64, 65, 70, 75 and 76 under 35 U.S.C. §103.

Second, ostensibly, all of the art relied upon by the Examiner endeavors to provide a lock that may be easily retrofitted. Gokcebay '777 however, requires that a bore 50 be drilled within the shell of the existing lock while Thordmark '274 requires that a separate V-shaped groove 3c that is spaced-apart and distinct from the slot for sidebar 7, be machined within the cylinder, and that the entire recess shown in Figure 1 be machined into the shell. Contrary to the Examiner's assertions, neither Naveda '127 nor Thordmark '274 nor Gockebay '777 advocates both insertion of an electrical operator into the cylinder plug and some interaction between that plug borne operator and a bar, elongated member or sidebar that is able to make simultaneous engagement of both the shell and cylinder plug, because:

- Gockebay '777 teaches only insertion of a solenoid within the cylinder,

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- Gockebay '777 is wholly devoid of any bar (other than the armature 18 that is itself a part of solenoid 17),
- Gockebay '777 is wholly devoid of any bar that provides any type of engagement between the shell and cylinder,
- Thordmark '274 teaches nothing about insertion of any operator within the cylinder,
- both Gockebay '777 and Thordmark '274 require not only complete replacement of the cylinder, but major alteration of the shell in order to accommodate a retrofit,
- both Gockebay '777 and Thordmark '274 are utterly incapable of providing any interaction with their primary locking mechanical features, and
- Naveda '127 is singularly devoid of any teaching of a cylinder plug and discloses no primary mechanical locking mechanism as is required by both Gockebay '777 and Thordmark '274,
- Naveda '127 fails to describe how traveling coil 17, armature 18 and latching element 10 of Fig. 7 of Thordmark '274 incorporated into the plug of Gockebay '777.

In contradistinction, Appellant's claims define a structure with an electrical operator borne by the cylinder plug, a member moving in response to the operator, and interaction between the operator and a bar, elongate member or sidebar interposed between the shell and the cylinder plug. Although these differences may appear to be but a small advance in the art, the advantages flowing from these differences are substantial. For example, only Appellant's claims define a structure with an electronic operator borne by the cylinder plug that interacts with a sidebar, elongate member or bar, and that consequently, is able to advantageously both retrofit an

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installed lock by the expedient of replacing only the cylinder plug *without any* alteration of the shell and to *interact or cooperate with* an existing sidebar of a primary mechanical locking mechanism that is positioned between the shell and plug. The fact that both Gockebay '777 and Thordmark '274 are concerned with retrofitting of existing locks, a fact noted by the Examiner, and that both references require modification of the shell of the lock in order to complete that retrofitting, while Appellant alone provides a cylinder plug that may work with an existing sidebar and may be retrofit without any modification of the shell is a difference between the prior art and the structure defined by the pending claims that prevents the subject matter as a whole from being obviousness under 35 U.S.C. §103. This deficiency in the Examiner's proposed combination is not remedied by Naveda '127. Moreover, this deficiency is highlighted by the fact that Thordmark '274 clearly avoids either teaching or suggestion of any interaction or cooperation between sidebar 7 and coil 17.

This interaction with an existing sidebar beneficially enhances the security provided by Appellant's lock. Neither Gockebay '777, Thordmark '274 nor Naveda '127, nor the Examiner's proposed combination of Gockebay '777, Thordmark '274 and Naveda '127 are able to provide these advantages. Moreover, the Examiner's proposed combination is incomplete and fails to make a *prima facie* showing of obviousness; how, for example, is the traveling coil 17, armature 18 and latching element 10 of Fig. 7 of Thordmark '274 incorporated into the plug of Gockebay '777? No details of such a combination are provided by the Examiner's proposed combination. Accordingly, in view of these differences between the pending claims and the prior art, "the subject matter as a whole" can not be found to be rendered obvious under 35 U.S.C.

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§103. In short, the Examiner has unfairly sought to limit the scope of coverage to which Appellant is entitled by reconstructing the art in an effort to meet the terms of Appellant's claims when none of that art suggests such a simple modification of the art as Appellant's electrical operator being both borne by and rotating with the cylinder plug *and* operating to block the travel of a sidebar. Accordingly, reversal of this rejection is required.

Claim 95

Claim 95 was rejected under 35 U.S.C. §103(a) as rendered obvious by the same proposed combination of Gokcebay '777 and Thordmark '274. Appellant respectfully traverses this rejection for all the reasons set forth in the foregoing paragraphs.

Additionally, Appellant notes that the Examiner's proposed combination is devoid of such as further patentably distinguishing features as Appellant's "locking mechanism" that is "interposed between said cylinder plug and said bar." The absence of a *prima facie* showing of obviousness characterizing the administrative record before the Board may be best exhibited by a careful examination of both the references that the Examiner has repeatedly misrepresented in the examination. Neither those references may be said by the Examiner to accomplish in combination, what neither accomplishes alone. Even if by some rogue interpretation of §103 unsupported by either by the Commissioner or 35 U.S.C. §103 the Examiner is able to provide the Appellant's electrical operator bore by the cylinder plug, the Examiner is not able to demonstrate a locking mechanism that is "interposed between said cylinder plug and said plug." Appellant questions which noun in the phrase "locking mechanism" is not understood. This clear definition of cooperation between the several elements of Appellant's claim 95 provides

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both primary and secondary security, in the manner neither in vision nor suggested by the Examiner's proposed combination. Accordingly, claim 95 is separately patentably distinguishable and allowable. Reversal of the rejection is required.

Claim 105

Claim 105 defines a geometric construct between orientation of a side bar travel and a movement of a locking member. In the Examiner's proposed combination including the two secondary references, this construct can not be met, evidence of a lack of a *prima facie* showing of obviousness. Moreover, incorporation of this construct into the primary reference would impermissibly prevent its solenoid from engaging the shell, thereby defeating its independent locking movement, further evidence of non-obviousness. This rejection should not be sustained.

Claims 108, 109, 111 And 113 Through 116

Dependent claims 108, 109, 111 and 113 through 116 were rejected under 35 U.S.C. §103(a) as rendered obvious by the proposed combination of Gokcebay '777 modified according to the Thordmark U.S. 5,542,274 in view of Naveda U.S. 4,416,127. These claims require a bar, or sidebar, "engaging both said shell and said cylinder plug during said rotation." In contradistinction, the Examiner's proposed combination modifies the single solenoid of the primary reference with an unknown structure, that necessarily requires a bar, or sidebar, wholly external to the cylinder plug, and which can not engage both the shell and cylinder plug during rotation. Moreover, in the proposed combination including Naveda '127, as in Thordmark '272, all moving parts, including bars, or sidebars, are wholly external to the cylinder plug. The record

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before the Board is utterly devoid of evidence providing motivation for interposing any of these moving parts between the shell and cylinder plug during rotation; in point of fact, the movable parts of Naveda '127 (which teaches a "bolt" type lock, as opposed to a cylinder lock) such as pinion 37, spring 38 and pinion 40, are located in the casemate of the lock, wholly divorce from the key and keyway which would normally characterize a cylinder lock. Which of those parts of Naveda '127 would have utility when incorporated into the primary reference is unknown. Equally lacking in Naveda '127, as in Thordmark '272, is motivation for incorporating any of its parts between the cylinder plug and shell during rotation; the primary reference does not benefit from such a modification. Appellant alone, unlike either the primary reference and unlike Naveda '127 and Thordmark '272, teaches interposition of a bar, or sidebar, which may be advantageously employed in cooperation with a separate locking mechanism. Both the primary reference and Thordmark '272 teaching auxiliary locking mechanism that are wholly divorced and physically separate from their mechanical locking mechanisms.¹⁰¹ Consequently, there is no basis for such a modification of the primary reference except an impermissible hindsight reconstruction of the art in the light provided by Appellant alone. The Board is therefore, respectfully requested to refuse to sustain this rejection.

Claims 119 And 120

Appellant notes that claim 119 is a copy of claim 1 of Field '307, and that claim 120 is a copy of claim 14 of the Field '307 patent. The several components have been previously

¹⁰¹ In the language of Thordmark '272, these two locking mechanism are "two or more mutually independent lock functions." Col. 3, lines 8 and 9.

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identified in the Appellant's earlier filed responses. Appellant further notes that dependent claim 119 is directed to the language on lines 7-18 of column 9, it is copied from claim 1 of Field '307 patent. Consequently, claims 119 and 120 are identical to claims 1 and 14 of Field '307 patent. This language was previously presented within the one year period of time, and the language from claim 1 of Field '307 was removed because it is not believed to be technically accurate. Given the allowance of claims 1 and 14 of Field '307, over the same art now asserted by the Examiner, there is no basis for maintaining this rejection.

Claim 121

Claim 121 defines a structure with "a bar interposed between said shell and said cylinder plug detent extending radially from a second recess within said shell into a passage within said cylinder plug to create an obstruction to rotation of said cylinder plug ..." in combination with a "cylinder plug comprising ... an electrical operator borne by said cylinder plug and rotatable with said cylinder plug, said electrical operator being electrically operable to respond to a control signal by moving independently of said detent between one of a first orientation accommodating relative movement between said detent and said cylinder plug and a second and different orientation maintaining obstruction of said relative movement by engaging said detent ..." In addition to the deficiencies in the record noted in the foregoing several pages of this Brief, the Examiner's proposed combination is wholly devoid of any structure able to implement Appellant's "moving independently" without both preventing the primary reference from operating in its intended mode, and disregarding the specific structural teachings of the two secondary references. In other words, the record fails to show either a *prima facie* teaching or

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obviousness or motivation necessary to construct the Examiner's proposed combination. The Board is therefore urged to refuse to sustain this rejection.

IX. CONCLUSION

First, there is no evidence of record of an absence of either (i) a lack of enablement the subject matter of claims 11 through 13, 90 or 120 of (ii) an absence of a written description the subject matter of claim 11 through 13, 90 or 120, or (iii) a failure to disclose the best mode for practicing the subject matter of claim 11 through 13, 90 or 120.¹⁰² Under U.S. practice, "the examiner has the initial burden of presenting by a preponderance of evidence why a person skilled in the art would not recognize in an applicant's disclosure a description of the invention defined by the claims."¹⁰³ That initial burden has not been met; consequently, in view of the satisfaction of the requirement for enablement of the phrases "distal member", this rejection may not be sustained under the first paragraph of §112.¹⁰⁴

Second, Appellant's demonstration of the clarity and ascertainability of scope of claims 1, 6, 14, 70 and 121, the rejection of claims 1 through 10, 14 through 24, 35 through 38, 70

¹⁰² *High Concrete Structures, Inc. v. New Enter. Stone And Lime Co.*, 377 F.3d 1379, 71 USPQ2d 1948, 1951, WL 1689152 (Fed. Cir. 29th July 2004).

¹⁰³ *MPEP*, 8th Ed., Rev. 3 (August 2005) §2163, citing *Wertheim*, 541 F.2d 257, 263, 191 USPQ 90, 97 (CCPA 1976).

¹⁰⁴ Where the meaning of a claim is "reasonably discernable," the claim is not indefinite. *Bancorp Servs., LLC v Hartford Life Ins. Co.*, 359 F.3d 1367, 69 USPQ2d. 1996 (Fed. Cir. 1st March 2004).

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through 74, 106, 111 and 121 under the second paragraph of 35 U.S.C. §112 should not be sustained.

Third, under *Geneva Pharmaceuticals, Inc. v. Glaxo SmithKline PLC*, 349 F.3d 1373, 68 USPQ2d 1865 (Fed.Cir. 21st November 2003), 35 U.S.C. §121 bars an obviousness-type double patenting rejection when (i) each claim of Appellant '601 patent appeared in the instant application, (ii) the Examiner actually imposed, maintained, and continues to maintain a requirement under 37 CFR §1.146 for an election of species, arguing that no generic claims were allowable, and (iii) Appellant's filed a divisional application was filed to present claims which were indicated by the Examiner to be allowable in the above-captioned application, and those claims were passed to issue in Appellant's '601 patent. This rejection of claims 1 through 5, 11 through 13, 34, 65 through 69, 75, 92 through 100, 112 and 121 may not therefore, be maintained under the doctrine of obviousness type double patenting.

Fourth, turning now to the issue of obviousness of claims 46 through 52, 54, 56, 64, 70, 76, 77, 85, 90, 91, 105, 108, 109, 111, 113 through 116, 119, 120 and 121 under 35 U.S.C. §103(a) over the Examining staff's proposed combination of Gockebay '777, Thordmark '274 and Naveda '127, 35 U.S.C. §103 requires consideration of whether the differences between the subject matter defined by each pending claim and the prior art are such that the "subject matter as a whole" would have been obvious? Under U.S. practice, "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. *In re Fritch*, 972 F.2d 1260, 1266, n.14, 23 USPQ2d 1780, 1783-84, n.14 (Fed Cir. 1992), citing *In re Gordon*, 733

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F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). It is further established that the Examiner must make specific findings on a suggestion to combine prior art references. *In re Dembiczak*, 175 F.3d 994, 1000-01, 50 USPQ2d 1614, 1617-19 (Fed. Cir. 1999).

As demonstrated the by foregoing paragraphs, the Examiner has focused not on the subject matter of Appellant's claims as a whole, but has focused upon individual limitations. Ostensibly, the prior art relied upon by the Examiner endeavors to provide a lock that may be easily retrofitted. Gockebay '777 however, requires that a bore 50 be drilled within the shell of the existing lock while Thordmark '274 requires that a separate V-shaped groove 3c that is spaced-apart and distinct from the slot for sidebar 7, be machined within the cylinder, and that the entire recess shown in Figure 1 be machined into the shell. Contrary to the Examiner's assertions, neither Naveda '127 nor Thordmark '274 nor Gockebay '777 advocates both insertion of an electrical operator into the cylinder plug and some interaction between that plug borne operator and a bar, elongated member or sidebar that is able to make simultaneous engagement of both the shell and cylinder plug, because:

- Gockebay '777 teaches only insertion of a solenoid within the cylinder,
- Gockebay '777 is wholly devoid of any bar (other than the armature 18 that is itself a part of solenoid 17),
- Gockebay '777 is wholly devoid of any bar that provides any type of engagement between the shell and cylinder,
- Thordmark '274 teaches nothing about insertion of any operator within the cylinder,
- both Gockebay '777 and Thordmark '274 require not only complete replacement of

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the cylinder, but major alteration of the shell in order to accommodate a retrofit,

- both Gockebay '777 and Thordmark '274 are utterly incapable of providing any interaction with their primary locking mechanical features, and
- Naveda '127 is singularly devoid of any teaching of a cylinder plug and discloses no primary mechanical locking mechanism as is required by both Gockebay '777 and Thordmark '274,
- Naveda '127 fails to describe how traveling coil 17, armature 18 and latching element 10 of Fig. 7 of Thordmark '274 incorporated into the plug of Gockebay '777.

In contradistinction, Appellant's claims define a structure with an electrical operator borne by the cylinder plug, a member moving in response to the operator, and interaction between the operator and a bar, elongate member or sidebar interposed between the shell and the cylinder plug. Although these differences may appear to be but a small advance in the art, the advantages flowing from these differences are substantial. For example, only Appellant's claims define a structure with an electronic operator borne by the cylinder plug that interacts with a sidebar, elongate member or bar, and that consequently, is able to advantageously both retrofit an installed lock by the expedient of replacing only the cylinder plug *without any* alteration of the shell and to *interact or cooperate with* an existing sidebar of a primary mechanical locking mechanism that is positioned between the shell and plug. The fact that both Gockebay '777 and Thordmark '274 are concerned with retrofitting of existing locks, a fact noted by the Examiner, and that both references require modification of the shell of the lock in order to complete that retrofitting, while Appellant alone provides a cylinder plug that may work with an existing

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sidebar and may be retrofit without any modification of the shell is a difference between the prior art and the structure defined by the pending claims that prevents the subject matter as a whole from being obviousness under 35 U.S.C. §103. This deficiency in the Examiner's proposed combination is not remedied by Naveda '127. Moreover, this deficiency is highlighted by the fact that Thordmark '274 clearly avoids either teaching or suggestion of any interaction or cooperation between sidebar 7 and coil 17.

This interaction with the existing sidebar beneficially enhances the security provided by Appellant's lock. Neither Gockebay '777, Thordmark '274 nor Naveda '127, nor the Examiner's proposed combination of Gockebay '777, Thordmark '274 and Naveda '127 are able to provide these advantages. Moreover, the Examiner's proposed combination is incomplete and fails to make a *prima facie* showing of obviousness; how, for example, is the traveling coil 17, armature 18 and latching element 10 of Fig. 7 of Thordmark '274 incorporated into the plug of Gockebay '777? No details of such a combination are provided by the Examiner's proposed combination. Accordingly, in view of these differences between the pending claims and the prior art, "the subject matter as a whole" can not be found to be rendered obvious under 35 U.S.C. §103. In short, the Examiner has unfairly sought to limit the scope of coverage to which Appellant is entitled by reconstructing the art in an effort to meet the terms of Appellant's claims when none of that art suggests such a simple modification of the art as Appellant's electrical operator being both borne by and rotating with the cylinder plug *and* operating to block the travel of a sidebar. Evidence of that error in the formation of the Examiner's proposed combination lies in the fact that the proposed combination is depends upon a primary reference that discloses

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numerous embodiments of an invention, but none of those several embodiments derive any advantage from the modifications required to construct the Examiner's proposed combination; those modifications simply produce a more cumbersome structure with more parts that accomplishes nothing that the primary reference does not achieve without those modifications. This is evidence of a lack of motivation in the art to make the modifications necessary to construct the Examiner's proposed combination, as well as evidence that the Examiner is simply using Appellant's claims as a blueprint in an impermissible effort to make a hindsight reconstruction of the art.

Perhaps the proposed combination of Gokcebay 777, Thordmark, *et al.* '274 and Naveda '217 was formed on the reverse side of the "looking glass", out of sight of the intrinsic limitations of the proposed combination, guided only by Appellant's contribution to the art, and without consideration of the pending claims in their entireties:¹⁰⁵

- By way of example, the Examiner's proposed combination including Gokcebay 777 is not a pioneering patent. Gokcebay '777 itself teaches, at some length, that it is an improvement over Appellant's earlier U.S. Patent No. 5,140,317.¹⁰⁶ Gokcebay '777 however, in seeking to improve upon Mr. Hyatt's, that is, the Appellant's, earlier efforts in the art, places a premium upon extreme

¹⁰⁵ 35 U.S.C. §103(a) mandates consideration of the *subject matter as a whole* in a determination of obviousness. A point-of-novelty test is improper.

¹⁰⁶ Gokcebay, *et al.*, '777, see the entirety of column 2, lines 7 through 54, devoted to an analysis by the Examiner's primary reference, of Appellant's earlier U.S. Patent No. 5,140,317.

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compactedness¹⁰⁷ of his electronic access control that is physically irreconcilable with the demands of the secondary references for unrestricted axial length of its “mutually independent lock functions.”¹⁰⁸ The primary reference, in his efforts to follow the teachings of Appellant, concentrates his structure within his cylinder plug 24 to offer a structure “in an extremely compact fashion”¹⁰⁹ for which “[n]o additional space is required to implement the system of the invention.”¹¹⁰ The Examiner’s proposed combination however, as represented by Thordmark, *et al.* ‘274 and Naveda ‘217, dwells wholly outside the cylinder plug and demands,

“a latching element 10 [the configuration of which] can vary within wide limits ... [and] its length may vary but preferably it exceeds half the axial length of the plug and may – as in the illustrated embodiments – often substantially correspond to the axial length of the plug.”¹¹¹

This disharmony, attributable to both the radial versus axial orientation in the primary and secondary references, as well as to the gross differences in size

¹⁰⁷ Gokcebay, *et al.*, ‘777, see column 3, lines 1 through 5, as well as column 4, lines 39 through 41.

¹⁰⁸ Thordmark, *et al.* ‘274, column 2, lines 66 and 67, and column 3, line 9.

¹⁰⁹ Gokcebay, *et al.*, ‘777, see column 4, line 39.

¹¹⁰ Gokcebay, *et al.*, ‘777, see column 4, lines 41, 42. As taught by the primary reference, his lock “has an electronic access feature which occupies no more sapce than the mechanical lock itself. *Nothing* is required outside the lock cylinder ... *aside from* a small recess or bore [*i.e.*, bore 50] which is provided in the cylinder shell.” Gokcebay, *et al.*, ‘777, see column 3, lines 1 through 5.

¹¹¹ Thordmark, *et al.* ‘274, see column 6, lines 18 through 25, together with column 4, lines 20 through 23.

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relative to the cylinder plug in the primary and secondary references, and to the insistence of the primary reference that “[n]othing is required outside the lock cylinder”¹¹² versus the demand of the secondary references that all moving parts be required to be on the outside of the lock cylinder, is irreconcilable, and impermissibly prevents the primary reference from being practiced in its intended mode of operation, contrary to the practice under 35 U.S.C. §103(a). Consequently, the primary reference may not be modified according to the teachings of the secondary references.

By way of a second example, Gokcebay ‘777 dwells upon direct engagement between the cylinder plug and its surrounding shell in an effort to provide, “in an extremely compact fashion, electronic access control to a conventional mechanical lock”¹¹³ with “a bore or recess 50 [cut into cylinder shell 46] into which the blocking pin 38 extends in the blocking position.”¹¹⁴ In the Examiner’s proposed combination including Thordmark, *et al.* ‘274, the entirety of “latching element 10” having a certain axial length, “coacts with a blocking element” 11 which is “conveniently moved axially by means of an electric motor, an electromagnet, a solenoid ...” is encased within “a lock cylinder 2”, to indirectly engage “plug 3”; this entirety is taught by the Examiner’s proposed combination to be one of two,

¹¹² Gokcebay *et al.* ‘777, see column 3, lines 2 and 3.

¹¹³ Gokcebay, *et al.*, ‘777, see column 4, lines 39 and 40.

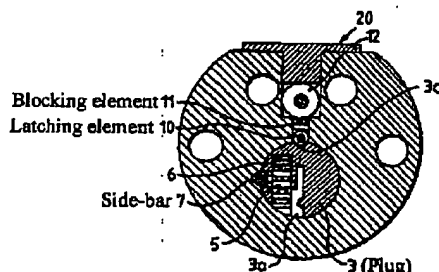
¹¹⁴ Gokcebay, *et al.*, ‘777 see column 6, lines 45 through 48.

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or more, "mutually independent latching or blocking devices."¹¹⁵

Thordmark et al. U.S. Patent No. 5542274

Figure 3



Completely absent from the Examiner's proposed combination is any direct locking, or latching, or blocking function achieved between "lock cylinder 2" and "plug 3" with the direct engagement taught by the primary reference, because the proposed combination teaches that its electrically activated latching or blocking device is devoid of either structural or functional relation to "side-bar 7."

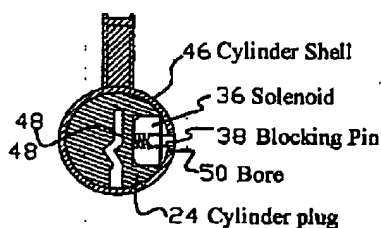
This divergence by the secondary references from the teaching by the primary reference of a solenoid to achieve direct engagement between the cylinder plug 24 and bore 50 in the surrounding cylinder shell 46,

¹¹⁵ Thordmark, *et al.* '274, column 2, lines 66 and 67, and column 3, lines 8 through 10.

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Gokcebay et al. U.S. Patent No. 5552777

Figure 5



in addition to irreconcilability between the teachings of the primary reference on "extremely compact fashion" and the demand by the secondary references in the proposed combination for a latching element 10 of a certain axial length, deprives the prior art of all evidence of motivation for making the Examiner's proposed combination. The various teachings of the several component references in the Examiner's proposed combination are irreconcilable on the features defined by the finally rejected claims.¹¹⁶ Although the prior art may contain all of the constituent

¹¹⁶

Claim 46: "said cylinder plug comprising ... an electrical operator ... obstructing movement of said bar ..."

Claim 56: "an elongate member interposed between said shell and said plug to travel ... said plug comprising ... an electrical operator ... obstructing said travel ..."

Claim 64: "a sidebar interposed between said shell and said cylinder plug to travel ... an electrical operator borne by said cylinder plug ... providing obstruction of said travel ..."

Claim 70: "a bar interposed between said shell and said cylinder plug to travel ... an electrical operator borne by said cylinder plug ... providing obstruction of said travel ..."

Claim 76: "an elongate bar ... interposed between said shell and said cylinder plug to travel ... an electrical operator borne by said cylinder plug ... providing obstruction of said travel ..."

Claim 77: "an elongate bar ... interposed between said shell and said cylinder plug to travel ... an electrical operator borne by said cylinder plug ... providing obstruction of said travel ..."

Claim 85: "a side bar cooperating between the shell and the barrel ... at least one electromechanical locking member is disposed within the barrel ... an electronically

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parts of the rejected claims, not only is that art devoid of motivation to combine those parts in the manner defined by these claims to cooperate in the relationships set forth by these claims, but the teachings of that art are irreconcilable on the precise points of mutual independence of lock functions, compactedness and direct, versus indirect, engagement between the lock cylinder 2 and plug 3, where that art differs between the pending claims. In view of such advantageous results flowing from these differences such as Appellant's preservation of compactedness and enabling retro-fitting without a need to cut a bore 50¹¹⁷ into the shell in the manner required by the primary reference, these rejections may not be sustained under 35 U.S.C. §103(a).

powered drive mechanism located within the barrel and cooperating with the electromechanical locking member to selectively move the locking member ... in which the side bar moves”

Claim 89: “an elongate ... barrel member ... containing an electromechanical locking member ... disposed in the recess of the barrel member ... an electronically powered drive mechanism located within the barrel member for moving the electromechanical locking member”

Claim 90: “providing an electronically powered rotatable barrel ... including: at least one electromechanical locking member disposed in the barrel ... positionable to permit the side bar to engage the locking member”

Claim 91: “a bar interposed between said shell and said cylinder plug to reciprocate ... a locking mechanism borne by said cylinder plug ... hindering said reciprocation ... and an electrical operator borne by said cylinder plug ... providing obstruction of said reciprocation by said bar”

Claim 120: “an elongated ... barrel member ... containing a plurality of electromechanical locking members ..., each of the locking members including a groove ... [and] an electronically powered drive mechanism located within the barrel member for moving the electromechanical locking members to a position in which the grooves of the locking members are aligned.”

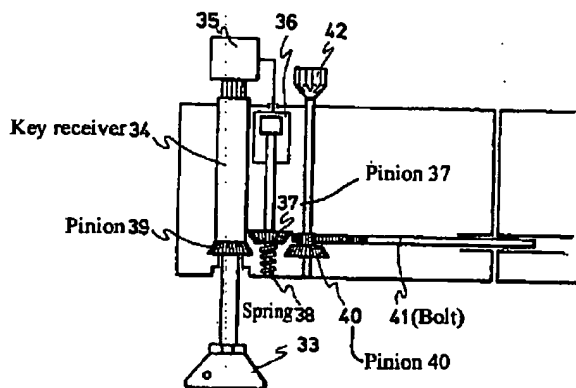
Claim 121: “a bar interposed between said shell and said cylinder plug detent extending radially from a second recess within said shell ...; said cylinder plug comprising ... and electrical operator borne by said cylinder plug ... moving ... between ... a second and different orientation maintaining obstruction of said relative movement by engaging said detent”

¹¹⁷ Gokcebay, *et al.*, ‘777 see column 6, lines 45 through 48.

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- By way of further example, the Examining Staff makes much of the teaching in the Examiner's proposed combination including Naveda '127 in the proposed combination,

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Figure 10



despite the fact that all, and every single one of the moving parts of Naveda '127, namely pinion 39, pinion 37, spring 38, pinion 40, bolt 41, and the various unnumbered shafts, are all located wholly outside the circumference of key receiver 34,¹¹⁸ unlike the structure defined by the pending claims.¹¹⁹ At issue

¹¹⁸ See Figure 10, of Naveda '127.

¹¹⁹ **Claim 46:** "a bar borne by said plug ... said cylinder plug comprising: ... an electrical operator..."
Claim 56: "an elongate member interposed between said shell and said plug to travel ... said plug comprising ... an electrical operator ..."
Claim 64: "a sidebar interposed between said shell and said cylinder plug to travel ...; and an electrical operator borne by said cylinder plug ..."
Claim 70: "a bar interposed between said shell and said cylinder plug to travel ... an electrical operator borne by said cylinder plug ..."
Claim 76: "an elongate bar ... interposed between said shell and said cylinder plug to

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before the Board is what evidence of record provides motivation for incorporating the moving parts found on the exteriors of the structures in the secondary references into the interior of the cylinder plug? The primary reference itself, which limits "an electronic access feature ... [to occupancy of] no more space than the mechanical lock itself,"¹²⁰ may not be read to provide that motivation.

travel ... an electrical operator borne by said cylinder plug"

Claim 77: "an elongate bar ... interposed between said shell and said cylinder plug to travel ... an electrical operator borne by said cylinder plug ... providing obstruction of said travel"

Claim 85: "a side bar cooperating between the shell and the barrel ... at least one electromechanical locking member is disposed within the barrel ... an electronically powered drive mechanism located within the barrel and cooperating with the electromechanical locking member to selectively move the locking member ... in which the side bar moves"

Claim 89: "an elongate ... barrel member ... containing an electromechanical locking member ... disposed in the recess of the barrel member ... an electronically powered drive mechanism located within the barrel member for moving the electromechanical locking member"

Claim 90: "providing an electronically powered rotatable barrel ... including: at least one electromechanical locking member disposed in the barrel ... positionable to permit the side bar to engage the locking member"

Claim 91: "a bar interposed between said shell and said cylinder plug to reciprocate ... a locking mechanism borne by said cylinder plug ... hindering said reciprocation ... and an electrical operator borne by said cylinder plug ... providing obstruction of said reciprocation by said bar"

Claim 120: "an elongated ... barrel member ... containing a plurality of electromechanical locking members ..., each of the locking members including a groove ... [and] an electronically powered drive mechanism located within the barrel member for moving the electromechanical locking members to a position in which the grooves of the locking members are aligned."

Claim 121: "a bar interposed between said shell and said cylinder plug detent extending radially from a second recess within said shell ...; said cylinder plug comprising ... and electrical operator borne by said cylinder plug ... moving ... between ... a second and different orientation maintaining obstruction of said relative movement by engaging said detent"

120

Gokcebay, *et al.*, '777 see column 3, lines 1 through 6, together with column 2, lines 53 and 54, column 4, lines 40 through 43, and column 10, lines 10 through 15.

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Turning now to consideration of exemplars of deficiencies of the evidence in the administrative record before the Board which were noted earlier in the paper, these deficiencies in the evidence must be considered under the criterion set forth by the Court in *In re Sang-Su Lee*, 61 U.S.P.Q.2d 1430 (Fed. Cir. 2002).¹²¹

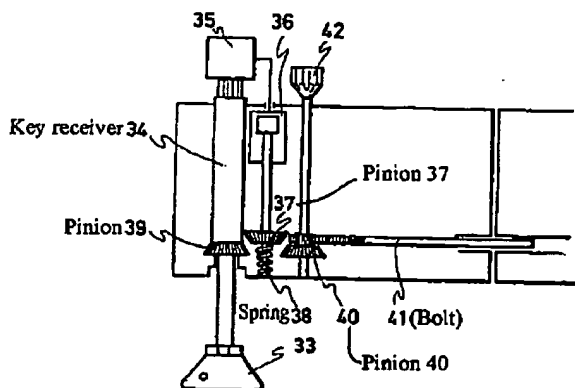
- By way of an additional example, the Examining Staff has sought to find motivation to incorporate the Thordmark, *et al.* '274 and Naveda '217 references into the structure of Gokcebay '777, despite the fact that Gokcebay '777, in teaching his improvements over Appellant's '317 patent, twice teaches against a structure such as that of Naveda '217 where the lock's system "would take up space within the ... lock casing adjacent to the lock."¹²² Despite this caution by the primary reference against structures such as that taught by Naveda '217, and despite the fact that all of the movable parts of Naveda '217 are in fact, located entirely within the lock's casing,

¹²¹ "Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the teaching or suggestion to combine prior art references. ... The need for specificity pervades this authority." *In re Sang-Su Lee*, 61 U.S.P.Q.2d @1433 (Fed. Cir. 2002).

¹²² See Gokcebay, *et al.*, '777, at col. 2, lines 39-40 ("the system of the patent [referring to Appellant's earlier '317 patent] requires additional hardware within the lock casing ...") and col. 2, lines 52-54 ("which avoids the need for electronics, solenoids or other hardware which would take up space within the ... lock casing adjacent to the lock").

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Naveda U.S. Patent No. 4416127
Figure 10



the Examining Staff seems convinced that Naveda '217 teaches the proposition that movable parts such as that taught by Thordmark, *et al.* '274 which are also wholly external to the cylinder plug, should be incorporated into the cylinder plug in the manner taught by Appellant's claims 120 and 121.¹²³ The fact that the sole motivation for such a construction is found in Appellant's claims, is convincing indicia of obviousness *vel non*.

- By way of a second additional example, the Examining Staff has ignored the complete absence from the art of any motivation provided by either Thordmark, *et al.* '274 or Naveda '217, or by Thordmark, *et al.* '274 and Naveda '217 in

¹²³

Claim 56: "an electrical operator ... obstructing said travel and relative operable movement between said shell and said plug while said electrical operator is contained wholly within said plug ..." In contradistinction the armature (*i.e.*, "block pin 38") of the primary reference would lack utility if its electrical operator was wholly within said plug during its locking situation, because the distal end of that electrical operator must extend completely through and beyond the cylinder plug and into bore 50 within the shell. See Gokcebay, *et al.*, '777, at column 6, lines 45 and 46.

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combination, to incorporate into the cylinder plug of the Examiner's proposed combination any constituent component other than the solenoid taught by the primary reference, and therefore lacks appellant's cooperation between an electrical operator borne by the cylinder plug and cooperating with a bar.

- By way of a third further example, the Examiner's proposed combination including Gokcebay '777 teaches that the embodiment illustrated in Figures 3, 4 and 5 "allows for secondary locking 'high security' mechanical features,"¹²⁴ but is utterly devoid of any teaching or suggestion for structural or functional cooperation between these "secondary locking 'high security' mechanical features" and his "conventional lock cylinder 20", while Thordmark, *et al.* '274 teaches "locks which include two or more *mutually independent* latching or blocking devices, of which one can be activated electrically"¹²⁵ and "a lock of the kind ... which has two or more *mutually independent* lock functions",¹²⁶ and Nevada '127 teaches but a single magnetic lock. Only Appellant's claims 46, 56 and 64, which when integrated into a conventional locking mechanism, advantageously both (i) recognize the innate deficiencies in locking structure devoted to preserving the mutually independency (as well as the secondariness of

¹²⁴ Gokcebay, *et al.*, '777, column 6, lines 54 and 55.

¹²⁵ Thordmark, *et al.* '274, column 2, line 66 through column 3, line 1.

¹²⁶ Thordmark, *et al.* '274, column 3, line 9.

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Gokcebay '777's "secondary locking"¹²⁷ of the lock functions in the prior art and (ii) provide "latching or blocking devices, of which one can be activated electrically"¹²⁸ and, unlike the prior art, may be integrated to cooperate in reinforcing the locking function of both locking mechanisms,¹²⁹ or alternatively, be selectively controlled to allow the mutual independency of the prior art.

- By way of a fourth example, the embodiment of Figures 3, 4 and 5 of the primary reference in the proposed combination teaches "a bore or recess 50 into which the blocking pin 38 extends in the blocking position."¹³⁰ Incorporation of any component of the secondary references into the primary reference impermissibly destroys the ability of the primary reference to operate in its intended mode of operation with "bore or recess 50 into which the blocking pin 38 extends,"¹³¹ because such an incorporation would inherently block bore 50. This inconsistency

¹²⁷ Gokcebay, *et al.*, '777, column 6, line 54.

¹²⁸ Thordmark, *et al.* '274, column 2, line 66 through column 3, line 1.

¹²⁹ It is not customary in U.S. practice to define the advantages that result from a novel structure, such as those advantages provided by a structure such as Appellant's that flow from positioning an electrical operator to interact with a bar, detent or sidebar; the language of Claim 64 expressly encompass such a structure and is worded to read: "said sidebar having a first portion that is positioned to be optionally block by another component of said lock functioning independently of said electrical operator to prevent said travel by said sidebar, and a second portion that is positioned to be blocked from said travel by said sidebar to said second position whenever said electrical operator is within said first orientation"

¹³⁰ Gokcebay, *et al.*, '777, column 6, lines 44 and 46.

¹³¹ Gokcebay, *et al.*, '777, column 6, lines 44 and 46.

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is further evidence of non-obviousness.

- By way of a fifth example, incorporation of any component of the secondary references into the embodiment of Figures 3, 4 and 5 of the primary reference in the proposed combination which teaches “a bore or recess 50 into which the blocking pin 38 extends in the blocking position”¹³² is a distortion of the teachings of the primary references because Thordmark, *et al.* ‘274 already teaches “a lock cylinder 2 which accommodates a plug 3 ... [and] a side-bar 7 [which] is able to move radially inward in the plug, so as to enable the plug to be rotated”¹³³, and preserves that “side bar 7” entirely **mutually independent**¹³⁴ from the operation of “latching element 10”, “blocking element 11”, “electric motor 12” and “electromagnet 17”, unlike the structure defined by the pending claims.¹³⁵

¹³² Gokcebay, *et al.*, ‘777, column 6, lines 44 and 46.

¹³³ Thordmark, *et al.* ‘274, column 4, lines 57-66.

¹³⁴ Thordmark, *et al.* ‘274, column 2, line 67, and column 3, line 9.

¹³⁵ **Claim 46:** “said cylinder plug comprising ... an electrical operator ... obstructing movement of said bar”

Claim 56: “an elongate member interposed between said shell and said plug to travel ... said plug comprising ... an electrical operator ... obstructing said travel”

Claim 64: “a sidebar interposed between said shell and said cylinder plug to travel ... an electrical operator borne by said cylinder plug ... providing obstruction of said travel”

Claim 70: “a bar interposed between said shell and said cylinder plug to travel ... an electrical operator borne by said cylinder plug ... providing obstruction of said travel”

Claim 76: “an elongate bar ... interposed between said shell and said cylinder plug to travel ... an electrical operator borne by said cylinder plug ... providing obstruction of said travel... .”

Claim 77: “an elongate bar ... interposed between said shell and said cylinder plug to

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- By way of a sixth example, the Examiner's proposed combination relies entirely upon electrically energy to move external blocking pin 38 of Gokcebay, *et al.*, '777, to move external blocking element 11 of Thordmark, *et al.*, '274 and to move external pinion 37 of Naveda '127. In contradistinction, Appellant relies is able to use the "torque that is externally applied to said plug and causes rotation of said plug within said shell."¹³⁶ There is no evidence of motivation present in

travel ... an electrical operator borne by said cylinder plug ... providing obstruction of said travel"

Claim 85: "a side bar cooperating between the shell and the barrel ... at least one electromechanical locking member is disposed within the barrel ... an electronically powered drive mechanism located within the barrel and cooperating with the electromechanical locking member to selectively move the locking member ... in which the side bar moves"

Claim 89: "an elongate ... barrel member ... containing an electromechanical locking member ... disposed in the recess of the barrel member ... an electronically powered drive mechanism located within the barrel member for moving the electromechanical locking member"

Claim 90: "providing an electronically powered rotatable barrel ... including: at least one electromechanical locking member disposed in the barrel ... positionable to permit the side bar to engage the locking member"

Claim 91: "a bar interposed between said shell and said cylinder plug to reciprocate ... a locking mechanism borne by said cylinder plug ... hindering said reciprocation ... and an electrical operator borne by said cylinder plug ... providing obstruction of said reciprocation by said bar"

Claim 120: "an elongated ... barrel member ... containing a plurality of electromechanical locking members ..., each of the locking members including a groove ... [and] an electronically powered drive mechanism located within the barrel member for moving the electromechanical locking members to a position in which the grooves of the locking members are aligned."

Claim 121: "a bar interposed between said shell and said cylinder plug detent extending radially from a second recess within said shell ...; said cylinder plug comprising ... and electrical operator borne by said cylinder plug ... moving ... between ... a second and different orientation maintaining obstruction of said relative movement by engaging said detent"

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Claim 56, lines 6-9.

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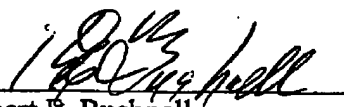
the record before the Board to modify the primary reference to rely upon
externally applied torque to remove "blocking pin 38" from bore 50.

Consequently, there is no basis in the record for sustaining the final rejection of claims 46, 56,
64, 70, 76, 77, 90, 91, 120 or 121.

Moreover, an improvement made in such a very crowded and ancient art is further
evidence of non-obviousness. Reversal of this rejection and allowance of claims 46 through 52,
54, 56, 64, 70, 76, 77, 85, 90, 91, 105, 108, 109, 111, 113 through 116, 119, 120 and 121 is
respectfully urged.

Such action is respectfully requested.

Respectfully submitted,


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I.D.: REB/kf

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X. APPENDIX I:

Claims Under Appeal

Claims 1-24, 34-38, 46-52, 54, 56, 64-70, 75-77, 90-100, 105, 106, 108, 109, 111-116, 119-121

1. (previously presented) A plug, comprising:

a first base bearing a keyway providing a first electrical conductor and an orifice spaced-apart from and separated by a mass of said plug from said keyway;

a second base separated by an axial length of said plug from said first base, said second base disposed to support a cam, said mass being perforated by a plurality of radially oriented apertures forming an array;

an exterior surface extending between and engaging said first base and said second base;

a sidebar positioned between said first base and said second base to reciprocate between a first location with said sidebar simultaneously engaging said plug and a cylinder surrounding said plug, and a second location releasing said plug for relative to movement between the cylinder and said plug;

a locking mechanism disposed within said apertures to move relative to said plug in response to a key inserted into said keyway to accommodate reciprocation of said sidebar relative to said plug and rotation of said plug relative to the cylinder when the key while inserted into said keyway engages in a selected relation with said locking mechanism, and obstructing said reciprocation absent said selected relation;

a second electrical conductor terminating with an electrical contact exposed to an exterior of said first base through said orifice;

an electronic logic circuit borne by said plug while coupled to receive electrical data signals via said first and second electrical conductors, and generating control signals in dependence upon said electrical power and data signals; and

an electrical operator disposed within one of said apertures, said operator having

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24 a distal member travelling in dependence upon said control signals between a first position
25 relative to said exterior surface obstructing said relative movement by engaging a detent
26 protruding from the cylinder, and a second and different position relative to said exterior surface
27 accommodating said relative movement.

1 2. (previously presented) The plug of claim 1, comprising said locking mechanism, logic
2 circuit and electrical operator simultaneously experiencing said rotation relative to the cylinder
3 whenever said plug rotates relative to the cylinder.

1 3. (previously presented) The plug of claim 1, comprising said locking mechanism, logic
2 circuit and electrical operator being wholly within the cylinder and travelling with said plug
3 whenever said plug moves relative to the cylinder.

1 4. (previously presented) The plug of claim 1, with said electrical operator maintaining
2 said distal member within said plug with said distal member extended not beyond said exterior
3 surface while said distal member is in said first position, and maintaining said distal member in
4 concurrent engagement with said plug and with the detent while said distal member is in said
5 first position.

1 5. (previously presented) The plug of claim 1, with said electrical operator maintaining
2 said distal member within said plug with said distal member extending not beyond said exterior
3 surface while said distal member is in said first position, and moving said distal member radially
4 between relative to said exterior surface in dependence upon said control signals.

1 6. (previously presented) A lock, comprising:
2 a cylinder containing a hollow recess defining a longitudinal axis and a stationary
3 detent extending from said cylinder;
4 a plug bearing a plurality of open radially oriented apertures forming an array, said

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5 plug being rotatable around said longitudinal axis while resident within said hollow recess, said
6 plug comprising:

7 a first base bearing a keyway providing a first electrical conductor and an
8 orifice spaced-apart from and separated by a mass of said plug from said keyway;

9 a second base separated by an axial length of said plug from said first base,
10 said second base disposed to support a cam;

11 an exterior surface extending between and engaging said first base and said
12 second base;

13 a sidebar positioned between said first base and said second base to create an
14 obstruction to relative movement between said cylinder and said plug;

15 a locking device disposed within said apertures to release an obstruction when the
16 key while inserted into said keyway engages in a selected relation with said locking means, and
17 to maintain said obstruction absent said selected relation;

18 a second electrical conductor terminating with an electrical contact exposed to an
19 exterior of said first base through said orifice;

20 an electronic logic circuit borne by said plug, coupled to receive electrical data
21 signals via said first and second electrical conductors, and generating control signals in
22 dependence upon said electrical power and data signals; and

23 an electrical operator borne by said plug, disposed within one of said apertures,
24 said operator having a distal member radially traveling along an axis transverse to said
25 longitudinal axis, in dependence upon said control signals between a first position relative to said
26 exterior surface by engaging said detent and thereby obstructing said movement in concert with
27 said locking device and a second and different position relative to said exterior surface
28 accommodating said movement.

1 7. (previously presented) The plug of claim 6, comprising said locking device, logic
2 circuit and electrical operator simultaneously experiencing said rotation relative to the cylinder
3 whenever said plug rotates relative to the cylinder.

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1 8. (previously presented) The plug of claim 6, comprising said locking device, logic
2 circuit and electrical operator being wholly within the cylinder and travelling with said plug
3 whenever said plug moves relative to the cylinder.

1 9. (previously presented) The plug of claim 6, with said electrical operator maintaining
2 said distal member within said plug with said distal member extended not beyond said exterior
3 surface while said distal member is in said second position, and maintaining said distal member
4 in engagement with said detent while said distal member is in said first position.

1 10. (previously presented) The plug of claim 6, with said electrical operator maintaining
2 said distal member within said plug with said distal member extending not beyond said exterior
3 surface while said distal member is in said first position.

1 11. (previously presented) A lock, comprising:
2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface, said shell bearing a detent extending into said shell;

4 a plug rotatable around said longitudinal axis while resident within said hollow
5 recess, and a bar interposed between said shell and said plug generally along a radial plane
6 engaging both said shell and said plug while obstructing rotation of said plug within said recess,
7 said plug comprising:

8 a first base providing a first electrical conductor;

9 a second base separated by an axial length of said plug from said first base;

10 an exterior surface extending between and engaging said first base and said

11 second base;

12 a locking device responsive to a key inserted into said keyway
13 accommodating relative movement between said shell and said plug when the key while
14 inserted into said keyway engages in a selected relation with said locking device and

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obstructing said relative movement absent said selected relation;

a second electrical conductor terminating with an electrical contact exposed to an exterior of said first base through said orifice;

an electronic logic circuit coupled to receive electrical data signals via said first and second electrical conductors, and generating control signals in dependence upon said data signals; and

an electrical operator having a distal member moving relative to said detent, in dependence upon said control signals between a first orientation relative to said exterior surface enabling said relative movement and a second and different orientation relative to said exterior surface obstructing said relative movement when said distal member at least partially surrounds said detent.

12. (previously presented) The plug of claim 1, further comprised of said:

electrical operator comprising an electrical coil coaxially aligned with said distal member, to move said distal member between said second position and said first position in response to said control signals; and

said distal member bearing a circumferential surface blocking said relative movement while said distal member is in said second position, and a variation in said circumferential surface accommodating said relative movement while said distal member is in said first position.

13. (previously presented) The plug of claim 6, further comprised of said:

electrical operator comprising an electrical coil coaxially aligned with said distal member, to move said distal member between said second position and said first position in response to said control signals; and

distal member bearing a circumferential surface engaging said detent while said distal member is in said second position, and a variation in said circumferential surface accommodating said relative movement while said distal member is in said first position.

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14. (previously presented) A lock, comprising:

- a cylinder containing a hollow interior recess defining a longitudinal axis, and bearing a slot within said recess; and
- a plug rotatable from a rest orientation around said longitudinal axis while resident within said hollow recess relative to said cylinder; and
- a stationary detent positioned between said first end and second end while extending into said slot, and providing simultaneous engagement of said cylinder and said plug while said cylinder remains in said rest orientation;

said plug comprising:

- a first base bearing an opening accommodating insertion of a key and providing a first electrical conductor;
- a second base separated by an axial length of said plug from said first base, said second base disposed to support a cam, said mass being perforated by an aperture;
- an exterior surface extending between said first base and said second base;
- retaining means oriented to retain a shank of a key inserted into said opening while said plug remains in an orientation other than said rest orientation relative to said cylinder, and to accommodate reversal of the key from said opening while said plug is in said rest orientation;
- a second electrical conductor terminating with an electrical contact exposed to an exterior of said first base through said orifice;
- an electronic logic circuit comprising a memory storing a code, said circuit being borne by said plug and coupled to receive electrical data signals via said first and second electrical conductors, said circuit generating control signals in dependence upon correspondence between said code and information borne by said data signals; and
- an electrical operator borne by said plug, said operator having a distal member travelling in dependence upon said control signals between a first position relative to said exterior surface maintaining engagement of said detent and a second and

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different position relative to said exterior surface accommodating movement between
said plug and said cylinder.

15. (previously presented) The lock of claim 14, further comprising:

said detent being borne by said cylinder; and

said distal member being oriented within said plug to move relative to said plug
to accommodate rotation of said plug from said rest orientation relative to the cylinder when a
key while inserted into said opening generates said data signals representing information having
a selected said correspondence with said code, and obstructing said rotation absent said selected
correspondence.

16. (previously presented) The lock of claim 14, further comprising:

said detent comprising an arm arcuately engaging said cylinder and a tooth
extending from said arm and through said slot; and

said distal member being oriented within said plug to move relative to said plug
to accommodate passage of said tooth relative to said distal member during rotation of said plug
from said rest orientation relative to the cylinder when a key while inserted into said opening
generates said data signals representing information having a selected said correspondence with
said code, and obstructing said rotation of said plug from said rest orientation by engaging said
tooth absent said selected correspondence.

17. (previously presented) The lock of claim 14, further comprising:

said detent comprising an arm arcuately engaging said cylinder and a tooth
extending from said arm and through said slot; and

said distal member being oriented within said plug to move relative to said plug
to accommodate passage of said tooth relative to said distal member during rotation of said plug
from said rest orientation relative to the cylinder when a key while inserted into said opening
generates said data signals representing information having a selected said correspondence with

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8 said code, obstructing said rotation of said plug from said rest orientation by engaging said tooth
9 absent said selected correspondence, and accommodating passage of said tooth relative to said
10 distal member during rotation of said plug from an orientation other than said rest orientation
11 to said rest orientation.

1 18. (previously presented) The lock of claim 14, further comprising:

2 said detent comprising an arm arcuately engaging said cylinder and a tooth
3 extending from said arm and through said slot; and

4 said distal member being oriented within said plug to move relative to said plug
5 to accommodate passage of said tooth relative to said distal member during rotation of said plug
6 from said rest orientation relative to the cylinder when a key while inserted into said opening
7 generates said data signals representing information having a selected said correspondence with
8 said code, and obstructing said rotation of said plug from said rest orientation by engaging said
9 tooth absent said selected correspondence when said rotation is in a first direction, and
10 accommodating said rotation of said plug from said rest orientation despite an absence of said
11 selected correspondence when said rotation is in a second and opposite direction.

1 19. (previously presented) The lock of claim 14, further comprising:

2 said detent comprising an arm arcuately engaging said cylinder and a tooth
3 extending from said arm and through said slot; and

4 said distal member being oriented within said plug in an engagement of said tooth
5 to obstruct said rotation of said plug from said rest orientation, and to move relative to said plug
6 from said engagement of said tooth obstructing said rotation of said plug from said rest
7 orientation to an accommodation of passage of said tooth relative to said distal member during
8 rotation of said plug from said rest orientation relative to the cylinder when a key while inserted
9 into said opening generates said data signals representing information having a selected said
10 correspondence with said code, and continuing said accommodation despite intermittent removal
11 of the key from said opening.

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20. (previously presented) The lock of claim 14, further comprising:

said detent comprising an arm arcuately engaging said cylinder and a tooth extending from said arm and through said slot; and

said distal member being oriented within said plug in an engagement of said tooth to obstruct said rotation of said plug from said rest orientation, and to move relative to said plug from said engagement of said tooth obstructing said rotation of said plug from said rest orientation to an accommodation of passage of said tooth relative to said distal member during rotation of said plug from said rest orientation relative to the cylinder when a key while inserted into said keyway generates said data signals representing information having a selected said correspondence with said code, and continuing said accommodation despite intermittent removal of the key from said opening absent subsequent said generation of data signals representing information having said selected correspondence with said code.

21. (previously presented) The lock of claim 16, further comprising:

a sidebar positioned between said first base and said second base to provide reciprocation between a first location with said sidebar providing simultaneous engagement with said plug and said cylinder, and a second location releasing said plug for rotation relative to the cylinder; and

said electrical operator comprising an electrical solenoid borne by said plug, said distal member comprising an armature travelling in dependence upon said control signals between a third position relative to said exterior surface maintaining said simultaneous engagement and a fourth and different position relative to said exterior surface accommodating said reciprocation.

22. (previously presented) The lock of claim 17, further comprising:

a sidebar positioned between said first base and said second base to provide reciprocation between a first location with said sidebar providing simultaneous engagement with

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said plug and said cylinder, and a second location releasing said plug for rotation relative to the cylinder; and

said electrical operator comprising an electrical solenoid borne by said plug, said distal member comprising an armature travelling in dependence upon said control signals between a third position relative to said exterior surface maintaining said simultaneous engagement and a fourth and different position relative to said exterior surface accommodating said reciprocation.

23. (previously presented) The lock of claim 18, further comprising:

a sidebar positioned between said first base and said second base to provide reciprocation between a first location with said sidebar providing simultaneous engagement with said plug and said cylinder, and a second location releasing said plug for rotation relative to the cylinder; and

said electrical operator comprising an electrical solenoid borne by said plug, said distal member comprising an armature travelling in dependence upon said control signals between a third position relative to said exterior surface maintaining said simultaneous engagement and a fourth and different position relative to said exterior surface accommodating said reciprocation.

24. (previously presented) The lock of claim 19, further comprising:

a sidebar positioned between said first base and said second base to provide reciprocation between a first location with said sidebar providing simultaneous engagement with said plug and said cylinder, and a second location releasing said plug for rotation relative to the cylinder; and

said electrical operator comprising an electrical solenoid borne by said plug, said member comprising an distal armature travelling in dependence upon said control signals between a third position relative to said exterior surface maintaining said simultaneous engagement and a fourth and different position relative to said exterior surface accommodating

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10 said reciprocation.

1 34. (previously presented) The lock of claim 1, further comprised of said:

2 electrical operator comprising an electrical coil moving said distal member, to
3 reciprocate said distal member between said first position and said second position in response
4 to said control signals; and

5 said distal member bearing a circumferential surface blocking said radial
6 movement of said sidebar while said distal member is in said second position, and
7 accommodating said radial movement while said distal member is in said first position.

1 35. (previously presented) The lock of claim 6, further comprised of said:

2 electrical operator comprising an electrical coil moving said distal member, to
3 reciprocate said distal member between said first position and said second position in response
4 to said control signals; and

5 said distal member bearing a circumferential surface blocking said radial
6 movement of said sidebar while said distal member is in said second position, and
7 accommodating said radial movement while said distal member is in said first position.

1 36. (previously presented) The lock of claim 16, further comprising said distal member
2 bearing a mass engaging said detent and blocking said rotation while said distal member is in
3 said first position, and a groove through said mass accommodating relative passage between said
4 distal member relative to said detent while said distal member is in said second position.

1 37. (previously presented) The lock of claim 16, further comprising said distal member
2 bearing a mass exhibiting a first height accommodating relative passage between said distal
3 member relative to said detent while said distal member is in said second position, and a second
4 and greater height engaging and blocking said rotation while said distal member is in said first
5 position.

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38. (previously presented) The lock of claim 16, further comprising said distal member bearing a mass having a periphery engaging said detent and blocking said rotation while said distal member is in said first position, and a central variation in said mass relative to said periphery accommodating relative passage between said distal member and said detent while said distal member is in said second position.

46. (previously presented) A lock, comprising:
a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess;

a bar borne by said plug and rotatable with said plug relative to said shell, said bar being interposed between said shell and said cylinder plug to reciprocate generally along a radial plane between a first position engaging both said shell and said cylinder plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation, said cylinder plug comprising:

a first base and a second base separated by an axial length of said plug from said first base, said second base bearing means for supporting a cam; and

an electrical operator being electrically operable to respond to an electrical control signal by obstructing movement of said bar between said first position and said second position in response to a first state of said control signal and by moving within a second and different plane not coextensive with said radial plane in response to application of said control signal to accommodate said movement of said bar in response to a second and different state of said control signal.

47. (previously presented) The lock of claim 46, further comprised of said operator directly obstructing movement of said bar between said first position and said second position

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absent said control signal.

48. (previously presented) The lock of claim 46, further comprised of:

a logic circuit borne by said cylinder plug generating said control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit; and

said electrical operator moving to accommodate said movement by said bar in response to said control signal.

49. (previously presented) The lock of claim 46, further comprised of a locking mechanism borne by said cylinder plug, said cylinder plug being perforated by an aperture admitting reciprocal travel of a key relative to said locking mechanism, and said locking mechanism obstructing movement of said cylinder plug relative to said shell absent the key exhibiting a selected relation with said locking mechanism.

50. (previously presented) The lock of claim 46, further comprised of a plurality of electrical conductors borne by said lock to engage a circuit in a key inserted into said cylinder plug.

51. (previously presented) The lock of claim 46, further comprised of a power source energizing said electric operator to move during said second and different state of said control signal, positioned to rotate with said cylinder plug relative to said shell.

52. (previously presented) The lock of claim 51, further comprised of said plug containing a keyway, and said power source being mounted on a key insertable into said keyway.

54. (previously presented) The lock of claim 46, further comprised of:

said cylinder plug containing a keyway;

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3 a memory borne by said cylinder plug and storing a code; and
4 a logic circuit comprising a memory storing a code, said circuit being borne by
5 said cylinder plug and generating said control signal in dependence upon correspondence
6 between said code and data borne by a key insertable within said keyway.

1 56. (previously presented) A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;

4 a plug rotatable around said longitudinal axis while resident within said hollow
5 recess;

6 an elongate member interposed between said shell and said plug to travel generally
7 along a radial direction between a first position where said elongate member obstructs rotation
8 between said shell and said plug by making a direct simultaneous engagement of both said shell
9 and said plug, and in response to a torque that is externally applied to said plug and causes
10 rotation of said plug within said shell, exiting said recess and traveling to a second position while
11 maintaining a second simultaneous engagement of said shell and said plug that accommodates
12 said rotation;

13 said plug comprising:

14 a first base perforated by an aperture, and a second base separated by an
15 axial length of said plug from said first base, said second base bearing means for
16 supporting a cam;

17 a logic circuit borne by said plug and rotatable with said plug, conveying
18 said data signal between said aperture to said logic circuit; and

19 an electrical operator responding to said control signals by moving
20 independently of said travel by said elongate member in a second direction within a plane
21 that maintains said simultaneous engagement but is not aligned with said radial direction
22 between one of a first orientation obstructing said travel and relative operable movement
23 between said shell and said plug while said electrical operator is contained wholly within

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said plug, and a second and different orientation accommodating said travel and said relative operable movement between said shell and said plug, and another of said first orientation and said second orientation.

64. (previously presented) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam;

a sidebar interposed between said shell and said cylinder plug to travel generally along a radial plane between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation;

a logic circuit generating an electrical control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit;

an electrical conductor provided by said plug, conveying said data signal to said logic circuit; and

an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to said control signal by moving in a different plane independently of said travel by said sidebar, between one of a first orientation providing obstruction of said travel and a second and different orientation accommodating said travel, and another of said first orientation and said second orientation;

said sidebar having a first portion that is positioned to be optionally blocked by another component of said lock functioning independently of said electrical operator to prevent said travel of said sidebar, and a second portion that is positioned to be blocked from said travel by said sidebar to said second position whenever said electrical operator is within said first

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orientation, and a second portion that is positioned to be optionally blocked by another component of said lock.

65. (previously presented) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam;

a bar interposed between said shell and said cylinder plug to travel generally along a radial plane between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation;

a logic circuit generating a control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit;

an electrical conductor provided by said plug, conveying said data signal to said logic circuit; and

an electrical operator comprising an armature, said armature being borne by said cylinder plug and rotating around said longitudinal axis with said plug, said electrical operator being electrically operable to respond to said control signal by moving independently of said travel, between one of a first orientation providing obstruction of said travel and a second and different orientation accommodating said travel, and another of said first orientation and said second orientation.

66. (previously presented) The lock of claim 65, with said electrical operator further comprising a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to move from one of said first and second orientations to the other

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4 of said first and second orientations in response to said control signal.

1 67. (previously presented) The lock of claim 65, with said electrical operator further
2 comprising a coil of an electrically conducting material that is borne by said cylinder plug and
3 wound to drive said armature to move from said first orientation to said second orientation in
4 response to said control signal.

1 68. (previously presented) The lock of claim 65, with electrical operator further
2 comprising a coil of an electrically conducting material that is borne by said cylinder plug and
3 wound to drive said armature to rotate around an arc in response to said control signal.

1 69. (previously presented) The lock of claim 65, with said electrical operator further
2 comprising a coil of an electrically conducting material that is borne by said cylinder plug and
3 wound to drive said armature to reciprocate along a radial axis that is transverse to said radial
4 plane in response to said control signal.

1 70. (previously presented) A lock, comprising:
2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;
4 a cylinder plug rotatable around said longitudinal axis while resident within said
5 hollow recess, said cylinder plug comprising a first base and a second base separated by an axial
6 length of said cylinder plug from said first base, said second base bearing means for supporting
7 a cam;
8 a bar interposed between said shell and said cylinder plug to travel generally along
9 a radial plane between a first position engaging both said shell and said plug while obstructing
10 rotation of said cylinder plug within said recess, and a second position accommodating said
11 rotation;
12 a logical circuit generating said control signal in response to a comparison between

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13 a code set within said logic circuit and a data signal applied to said logic circuit;
14 an electrical conductor provided by said plug, conveying said data signal to said
15 logic circuit; and
16 an electrical operator borne by said cylinder plug and rotatable with said plug, said
17 electrical operator being electrically operable to respond to an electrical control signal applied
18 to said electrical operator by moving along a geometrical construct other than to said radial plane
19 between one of a first orientation providing obstruction of said travel and a second and different
20 orientation accommodating said travel, and another of said first orientation and said second
21 orientation.

1 75. (previously presented) A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;

4 a cylinder plug rotatable around said longitudinal axis while resident within said
5 hollow recess, said cylinder plug comprising a first base and a second base separated by an axial
6 length of said cylinder plug from said first base, said second base bearing means for supporting
7 a cam;

8 a bar interposed between said shell and said cylinder plug to travel generally along
9 a radial plane between a first position engaging both said shell and said plug while obstructing
10 rotation of said cylinder plug within said recess, and a second position accommodating said
11 rotation;

12 a logic circuit generating a control signal in response to a comparison between a
13 code set within said logic circuit and a data signal applied to said logic circuit;

14 an electrical conductor provided by said plug, conveying said data signal to said
15 logic circuit; and

16 an electrical operator borne by said cylinder plug and rotatable with said plug, said
17 electrical operator being electrically operable to respond to said control signal by moving along
18 a radial axis that is transverse to said radial plane, between a first orientation providing

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obstruction of said travel and a second and different orientation accommodating said travel.

76. (previously presented) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam;

a logic circuit generating said control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit;

an electrical conductor provided by said plug, conveying said data signal to said logic circuit;

an elongate bar exhibiting a greatest longitudinal dimension along a second axis that extends transversely to said first base and to said second base, said bar being interposed between said shell and said cylinder plug to travel generally along a radial axis that is transverse to said second axis, between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation; and

an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to said control signal by moving along said radial axis between one of a first orientation providing obstruction of said travel and a second and different orientation accommodating said travel, and another of said first orientation and said second orientation.

77. (previously presented) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

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a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam;

a logic circuit generating said control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit;

an electrical conductor provided by said plug, conveying said data signal to said logic circuit;

an elongate bar exhibiting a greatest longitudinal dimension along a second axis that extends transversely to said first base and to said second base, said bar being interposed between said shell and said cylinder plug to travel generally along a radial axis that is radial to said cylinder plug and transverse to said second axis, between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation; and

an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to a control signal by moving between one of a first orientation providing obstruction of said travel and a second and different orientation accommodating said travel, and another of said first orientation and said second orientation.

90. (previously presented) A process of retrofitting a mechanical cylinder lock to form an electromechanical cylinder lock, the process comprising steps of:

providing a mechanical cylinder lock including an outer shell with a bore, a first rotatable barrel located in the bore, and a side bar for preventing and permitting rotation of the barrel within the bore in the shell;

removing the first barrel from the shell;

providing an electronically powered rotatable barrel having an exterior adapted to substantially correspond to the bore in the shell, and including:

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at least one electromechanical locking member disposed in the barrel, the electromechanical locking member being positionable to permit the side bar to engage the locking member in a non-barrel blocking position which permits the barrel to rotate with respect to the shell, and the electromechanical locking member also being positionable in a barrel blocking position which blocks rotation of the barrel with respect to the shell; and

an electronically powered drive mechanism cooperating with the electromechanical locking member to selectively move the locking member from the barrel blocking position to the non-barrel blocking position in which the side bar engages the locking member to rotate the barrel and operate the lock; and

securing the electronically powered rotatable barrel in the bore in the shell to form an electromechanical cylinder lock, the lock including control means carried by at least one of the barrel and bore for energizing the electronically powered drive mechanism in response to an authorized attempt to open the lock.

91. (previously presented) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising a first base perforated by a keyway and a second base separated by an axial length of said cylinder plug from said first base, said second base disposed to support a cam;

a bar interposed between said shell and said cylinder plug to reciprocate generally along a radial plane between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation when a torque is externally applied to said keyway to rotate said cylinder plug within said shell;

a locking mechanism borne by and rotating with said cylinder plug, said locking mechanism being interposed between said cylinder plug and said bar, and exhibiting a first

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disposition hindering said reciprocation and, in response to insertion of a key in physical conformance to said locking mechanism, exhibiting a second and different disposition accommodating said reciprocation; and

an electrical operator borne by said cylinder plug and rotatable with said cylinder plug, said electrical operator being electrically operable to respond to a control signal by moving independently of said bar between a first orientation providing obstruction of said reciprocation by said bar and a second and different orientation removing said obstruction.

92. (previously presented) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess;

a bar interposed between said shell and said cylinder plug to extend generally along a radial plane between a first state engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second state accommodating said rotation;

said cylinder plug comprising:

a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base configured to support a cam; and

an electrical operator comprising an armature borne by said cylinder plug and rotatable with said cylinder plug, said electrical operator being electrically operable to respond to a control signal by moving said armature independently of said bar, between one of a first orientation providing obstruction of said rotation during said first state and a second orientation accommodating independent relative movement between said bar and said cylinder plug, and another of said first orientation and said second orientation.

93. (previously presented) The lock of claim 92, further comprised of:

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a coil wound to provide conduction of an electrical current in response to said control signal; and

said armature comprising an exterior surface exhibiting a rest position between said shell and said cylinder plug, said armature obstructing said rotation absent said conduction, accommodating said rotation during said conduction, and accommodating said rotation until said rotation returns said armature to said rest position after termination of said conduction.

94. (previously presented) The lock of claim 92, further comprised of:

a coil wound to provide conduction of an electrical current in response to said control signal; and

said armature comprising an exterior surface exhibiting a rest position with said exterior surface extending between said shell and said cylinder plug while said cylinder plug is in alignment with said shell in a locked condition, said armature obstructing said rotation absent said conduction, accommodating said rotation during said conduction by withdrawing from said shell and wholly into said cylinder plug, accommodating said rotation until said rotation returns said armature to said rest position after termination of said conduction, and resuming said rest position when said rotation restores said alignment.

95. (previously presented) The lock of claim 92, further comprised of:

a coil wound to provide conduction of an electrical current in response to said control signal; and

said armature comprising an exterior surface exhibiting a rest position between said bar and said cylinder plug, said armature obstructing said rotation absent said conduction, said armature accommodating said rotation during said conduction, and said armature accommodating said rotation until said rotation returns said armature to said rest position after termination of said conduction.

96. (previously presented) The lock of claim 92, further comprised of:

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2 a coil wound to provide conduction of an electrical current in response to said
3 control signal; and

4 said armature comprising an exterior surface exhibiting a rest position with said
5 first orientation while said exterior surface is interposed between said bar and said cylinder plug
6 and obstructs said rotation absent said conduction, said armature assuming said second
7 orientation, withdrawing from said interposition and accommodating said rotation during said
8 conduction, and said armature accommodating said rotation until said rotation returns said
9 armature to said rest position with said first orientation after termination of said conduction.

1 97. (previously presented) The lock of claim 92, further comprised of:

2 a coil wound to provide conduction of an electrical current in response to said
3 control signal; and

4 said armature comprising an exterior surface exhibiting a rest position with said
5 first orientation while said exterior surface is interposed between said bar and said cylinder plug
6 and obstructs said rotation absent said conduction, said armature assuming said second
7 orientation, withdrawing from said interposition and accommodating said rotation during said
8 conduction, and said armature maintaining said second orientation and accommodating said
9 rotation after said rotation returns said armature to said rest position after termination of said
10 conduction.

1 98. (previously presented) The lock of claim 92, further comprised of:

2 a coil wound to provide conduction of an electrical current in response to said
3 control signal; and

4 said armature comprising an exterior surface exhibiting a rest position with said
5 first orientation while said exterior surface is interposed between said bar and said cylinder plug
6 and obstructs said rotation absent said conduction, said armature assuming said second
7 orientation, withdrawing from said interposition and accommodating said rotation during said
8 conduction, said armature maintaining said second orientation and accommodating said rotation

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9 after said rotation returns said armature to said rest position after termination of said conduction,
10 and said armature resuming said first orientation during renewal of said conduction subsequent
11 to said termination.

1 99. (previously presented) The lock of claim 92, further comprised of:
2 a coil wound to provide conduction of an electrical current in response to said
3 control signal; and
4 said armature comprising an exterior surface exhibiting a rest position while in
5 said first orientation absent said conduction with a first thickness of said exterior surface
6 interposed between said bar and said cylinder plug and with said cylinder plug in alignment with
7 said shell in a locked position, said armature exhibiting said second orientation and
8 accommodating said rotation during said conduction with a second and lesser thickness of said
9 exterior surface permitting movement of said bar relative to said cylinder plug, and said armature
10 accommodating said rotation until said rotation allows said bar to reverse said relative movement
11 and said armature to return to said rest position after termination of said conduction.

1 100. (previously presented) The lock of claim 92, further comprised of:
2 a logic circuit borne by said cylinder plug, generating said control signal in
3 response to a comparison between a code set within said logic circuit and a data signal applied
4 to said logic circuit; and
5 said electrical operator moving between said second orientation and said first
6 orientation in response to said control signal.

1 105. (previously presented) The process of claim 90, further comprising:
2 orienting said side bar to travel along a plane that extends approximately radially
3 relative to said electronically powered rotatable barrel when engaging said locking member; and
4 positioning said locking member to move on an axis that is approximately
5 perpendicular to said plane when said locking member is selectively moved from said barrel
6 blocking position to said non-barrel blocking position.

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1 106. (previously presented) The lock of claim 14, further comprising said bar engaging
2 both said shell and said plug during said movement between said plug and said cylinder.

1 108. (previously presented) The lock of claim 46, further comprising said bar engaging
2 both said shell and said cylinder plug during said rotation.

1 109. (previously presented) The lock of claim 64, further comprising said sidebar
2 engaging both said shell and said cylinder plug during said rotation.

1 111. (previously presented) The lock of claim 70, further comprising said bar engaging
2 both said shell and said cylinder plug during said rotation.

1 112. (previously presented) The lock of claim 75, further comprising said bar engaging
2 both said shell and said cylinder plug during said rotation.

1 113. (previously presented) The lock of claim 76, further comprising said bar engaging
2 both said shell and said cylinder plug during said rotation.

1 114. (previously presented) The lock of claim 77, further comprising said bar engaging
2 both said shell and said cylinder plug during said rotation.

1 115. (previously presented) The lock of claim 85, further comprising said side bar
2 engaging both said shell and said barrel during said rotation.

1 116. (previously presented) The lock of claim 91, further comprising said bar engaging
2 both said shell and said cylinder plug during said rotation.

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119. (previously presented) The lock cylinder of claim 85, in which said side bar moves out of the cavity and engages the locking member to rotate the barrel and operate the lock.

120. (previously presented) A rotatable lock barrel for insertion into a lock cylinder having a bore formed therein, the barrel comprising:

an elongated, generally cylindrically shaped barrel member having an exterior configured for receipt in a bore of a lock cylinder and an interior containing a plurality of electromechanical locking members, the barrel member having a recess formed therein;

wherein the locking members are disposed in the recess of the barrel member and are substantially entirely contained within the barrel member, each of the locking members including a groove and the locking members being movable to a position in which the grooves of the locking members are aligned;

the recess in said barrel member being configured to receive at least a portion of a movable side bar of a lock cylinder to permit the side bar to move into and out of engagement with the grooves of the locking members for selectively permitting and blocking rotation of the barrel member with respect to a lock cylinder when positioned therein;

an electronically powered drive mechanism located within the barrel member for moving the electromechanical locking members to a position in which the grooves of the locking members are aligned.

121. (previously presented) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess;

a bar interposed between said shell and said cylinder plug detent extending radially from a second recess within said shell into a passage within said cylinder plug to create an obstruction to rotation of said cylinder plug within said hollow recess;

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9 said cylinder plug comprising:

10 a first base and a second base separated by an axial length of said cylinder plug
11 from said first base, said second base configured to support a cam; and

12 an electrical operator borne by said cylinder plug and rotatable with said cylinder
13 plug, said electrical operator being electrically operable to respond to a control signal by
14 moving independently of said detent between one of a first orientation accommodating
15 relative movement between said detent and said cylinder plug and a second and different
16 orientation maintaining obstruction of said relative movement by engaging said detent,
 and another of said first orientation and said second orientation.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

RICHARD G. HYATT Jr.

Serial No.: 08/720,070

Examiner: BARRETT, SUZANNE

Filed: 27 September 1996

Art Unit: 3653

For: ELECTROMECHANICAL CYLINDER PLUG

AMENDMENT UNDER 37 C.F.R. § 41.33(b)(1)

Paper No. 87

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 C.F.R. §41.33(b)(1), entry of the following amendment and remarks, re-examination and reconsideration are respectfully requested.

Folio: P53821C
Date: 2/6/06
I.D.: REB/kf

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IN THE CLAIMS

Please cancel claims 85 through 89 and 101 through 104 without prejudice or disclaimer of their subject matter.

1. (previously presented) A plug, comprising:

a first base bearing a keyway providing a first electrical conductor and an orifice spaced-apart from and separated by a mass of said plug from said keyway;

a second base separated by an axial length of said plug from said first base, said second base disposed to support a cam, said mass being perforated by a plurality of radially oriented apertures forming an array;

an exterior surface extending between and engaging said first base and said second base;

a sidebar positioned between said first base and said second base to reciprocate between a first location with said sidebar simultaneously engaging said plug and a cylinder surrounding said plug, and a second location releasing said plug for relative to movement between the cylinder and said plug;

a locking mechanism disposed within said apertures to move relative to said plug in response to a key inserted into said keyway to accommodate reciprocation of said sidebar relative to said plug and rotation of said plug relative to the cylinder when the key while inserted into said keyway engages in a selected relation with said locking mechanism, and obstructing said reciprocation absent said selected relation;

a second electrical conductor terminating with an electrical contact exposed to an exterior of said first base through said orifice;

an electronic logic circuit borne by said plug while coupled to receive electrical data signals via said first and second electrical conductors, and generating control signals in dependence upon said electrical power and data signals; and

an electrical operator disposed within one of said apertures, said operator having a



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24 distal member travelling in dependence upon said control signals between a first position relative
25 to said exterior surface obstructing said relative movement by engaging a detent protruding from the
26 cylinder, and a second and different position relative to said exterior surface accommodating said
27 relative movement.

1 2. (previously presented) The plug of claim 1, comprising said locking mechanism, logic
2 circuit and electrical operator simultaneously experiencing said rotation relative to the cylinder
3 whenever said plug rotates relative to the cylinder.

1 3. (previously presented) The plug of claim 1, comprising said locking mechanism, logic
2 circuit and electrical operator being wholly within the cylinder and travelling with said plug
3 whenever said plug moves relative to the cylinder.

1 4. (previously presented) The plug of claim 1, with said electrical operator maintaining said
2 distal member within said plug with said distal member extended not beyond said exterior surface
3 while said distal member is in said first position, and maintaining said distal member in concurrent
4 engagement with said plug and with the detent while said distal member is in said first position.

1 5. (previously presented) The plug of claim 1, with said electrical operator maintaining said
2 distal member within said plug with said distal member extending not beyond said exterior surface
3 while said distal member is in said first position, and moving said distal member radially between
4 relative to said exterior surface in dependence upon said control signals.

1 6. (previously presented) A lock, comprising:
2 a cylinder containing a hollow recess defining a longitudinal axis and a stationary
3 detent extending from said cylinder;
4 a plug bearing a plurality of open radially oriented apertures forming an array, said



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5 plug being rotatable around said longitudinal axis while resident within said hollow recess, said plug
6 comprising:

7 a first base bearing a keyway providing a first electrical conductor and an
8 orifice spaced-apart from and separated by a mass of said plug from said keyway;

9 a second base separated by an axial length of said plug from said first base,
10 said second base disposed to support a cam;

11 an exterior surface extending between and engaging said first base and said
12 second base;

13 a sidebar positioned between said first base and said second base to create an
14 obstruction to relative movement between said cylinder and said plug;

15 a locking means disposed within said apertures to release an obstruction when the key
16 while inserted into said keyway engages in a selected relation with said locking means, and to
17 maintain said obstruction absent said selected relation;

18 a second electrical conductor terminating with an electrical contact exposed to an
19 exterior of said first base through said orifice;

20 an electronic logic circuit borne by said plug, coupled to receive electrical data signals
21 via said first and second electrical conductors, and generating control signals in dependence upon
22 said electrical power and data signals; and

23 an electrical operator borne by said plug, disposed within one of said apertures, said
24 operator having a distal member radially traveling along an axis transverse to said longitudinal axis,
25 in dependence upon said control signals between a first position relative to said exterior surface by
26 engaging said detent and thereby obstructing said movement in concert with said locking device and
27 a second and different position relative to said exterior surface accommodating said movement.

1 7. (previously presented) The plug of claim 6, comprising said locking device, logic circuit
2 and electrical operator simultaneously experiencing said rotation relative to the cylinder whenever
3 said plug rotates relative to the cylinder.

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1 8. (previously presented) The plug of claim 6, comprising said locking device, logic circuit
2 and electrical operator being wholly within the cylinder and travelling with said plug whenever said
3 plug moves relative to the cylinder.

1 9. (previously presented) The plug of claim 6, with said electrical operator maintaining said
2 distal member within said plug with said distal member extended not beyond said exterior surface
3 while said distal member is in said second position, and maintaining said distal member in
4 engagement with said detent while said distal member is in said first position.

1 10. (previously presented) The plug of claim 6, with said electrical operator maintaining said
2 distal member within said plug with said distal member extending not beyond said exterior surface
3 while said distal member is in said first position.

1 11. (previously presented) A lock, comprising:
2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface, said shell bearing a detent extending into said shell;
4 a plug rotatable around said longitudinal axis while resident within said hollow
5 recess, and a bar interposed between said shell and said plug generally along a radial plane engaging
6 both said shell and said plug while obstructing rotation of said plug within said recess, said plug
7 comprising:
8 a first base providing a first electrical conductor;
9 a second base separated by an axial length of said plug from said first base;
10 an exterior surface extending between and engaging said first base and said
11 second base;
12 a locking device responsive to a key inserted into said keyway
13 accommodating relative movement between said shell and said plug when the key while

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14 inserted into said keyway engages in a selected relation with said locking device and
15 obstructing said relative movement absent said selected relation;
16 a second electrical conductor terminating with an electrical contact exposed
17 to an exterior of said first base through said orifice;
18 an electronic logic circuit coupled to receive electrical data signals via said
19 first and second electrical conductors, and generating control signals in dependence upon
20 said data signals; and
21 an electrical operator having a distal member moving relative to said detent,
22 in dependence upon said control signals between a first orientation relative to said exterior
23 surface enabling said relative movement and a second and different orientation relative to
24 said exterior surface obstructing said relative movement when said distal member at least
25 partially surrounds said detent.

1 12. (previously presented) The plug of claim 1, further comprised of said:
2 electrical operator comprising an electrical coil coaxially aligned with said distal
3 member, to move said distal member between said second position and said first position in response
4 to said control signals; and
5 said distal member bearing a circumferential surface blocking said relative movement
6 while said distal member is in said second position, and a variation in said circumferential surface
7 accommodating said relative movement while said distal member is in said first position.

1 13. (previously presented) The plug of claim 6, further comprised of said:
2 electrical operator comprising an electrical coil coaxially aligned with said distal
3 member, to move said distal member between said second position and said first position in response
4 to said control signals; and
5 distal member bearing a circumferential surface engaging said detent while said distal
6 member is in said second position, and a variation in said circumferential surface accommodating

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said relative movement while said distal member is in said first position.

14. (previously presented) A lock, comprising:

a cylinder containing a hollow interior recess defining a longitudinal axis, and bearing a slot within said recess; and

a plug rotatable from a rest orientation around said longitudinal axis while resident within said hollow recess relative to said cylinder; and

a stationary detent positioned between said first end and second end while extending into said slot, and providing simultaneous engagement of said cylinder and said plug while said cylinder remains in said rest orientation;

said plug comprising:

a first base bearing an opening accommodating insertion of a key and providing a first electrical conductor;

a second base separated by an axial length of said plug from said first base, said second base disposed to support a cam, said mass being perforated by a an aperture;

an exterior surface extending between said first base and said second base; retaining means oriented to retain a shank of a key inserted into said opening while said plug remains in an orientation other than said rest orientation relative to said cylinder, and to accommodate reversal of the key from said opening while said plug is in said rest orientation;

a second electrical conductor terminating with an electrical contact exposed to an exterior of said first base through said orifice;

an electronic logic circuit comprising a memory storing a code, said circuit being borne by said plug and coupled to receive electrical data signals via said first and second electrical conductors, said circuit generating control signals in dependence upon correspondence between said code and information borne by said data signals; and

an electrical operator borne by said plug, said operator having a distal member

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26 travelling in dependence upon said control signals between a first position relative to said
27 exterior surface maintaining engagement of said detent and a second and different position
28 relative to said exterior surface accommodating movement between said plug and said
29 cylinder.

1 15. (previously presented) The lock of claim 14, further comprising:
2 said detent being borne by said cylinder; and
3 said distal member being oriented within said plug to move relative to said plug to
4 accommodate rotation of said plug from said rest orientation relative to the cylinder when a key
5 while inserted into said opening generates said data signals representing information having a
6 selected said correspondence with said code, and obstructing said rotation absent said selected
7 correspondence.

1 16. (previously presented) The lock of claim 14, further comprising:
2 said detent comprising an arm arcuately engaging said cylinder and a tooth extending
3 from said arm and through said slot; and
4 said distal member being oriented within said plug to move relative to said plug to
5 accommodate passage of said tooth relative to said distal member during rotation of said plug from
6 said rest orientation relative to the cylinder when a key while inserted into said opening generates
7 said data signals representing information having a selected said correspondence with said code, and
8 obstructing said rotation of said plug from said rest orientation by engaging said tooth absent said
9 selected correspondence.

1 17. (previously presented) The lock of claim 14, further comprising:
2 said detent comprising an arm arcuately engaging said cylinder and a tooth extending
3 from said arm and through said slot; and
4 said distal member being oriented within said plug to move relative to said plug to

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accommodate passage of said tooth relative to said distal member during rotation of said plug from said rest orientation relative to the cylinder when a key while inserted into said opening generates said data signals representing information having a selected said correspondence with said code, obstructing said rotation of said plug from said rest orientation by engaging said tooth absent said selected correspondence, and accommodating passage of said tooth relative to said distal member during rotation of said plug from an orientation other than said rest orientation to said rest orientation.

18. (previously presented) The lock of claim 14, further comprising:
said detent comprising an arm arcuately engaging said cylinder and a tooth extending from said arm and through said slot; and
said distal member being oriented within said plug to move relative to said plug to accommodate passage of said tooth relative to said distal member during rotation of said plug from said rest orientation relative to the cylinder when a key while inserted into said opening generates said data signals representing information having a selected said correspondence with said code, and obstructing said rotation of said plug from said rest orientation by engaging said tooth absent said selected correspondence when said rotation is in a first direction, and accommodating said rotation of said plug from said rest orientation despite an absence of said selected correspondence when said rotation is in a second and opposite direction.

19. (previously presented) The lock of claim 14, further comprising:
said detent comprising an arm arcuately engaging said cylinder and a tooth extending from said arm and through said slot; and
said distal member being oriented within said plug in an engagement of said tooth to obstruct said rotation of said plug from said rest orientation, and to move relative to said plug from said engagement of said tooth obstructing said rotation of said plug from said rest orientation to an accommodation of passage of said tooth relative to said distal member during rotation of said plug

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from said rest orientation relative to the cylinder when a key while inserted into said opening generates said data signals representing information having a selected said correspondence with said code, and continuing said accommodation despite intermittent removal of the key from said opening.

20. (previously presented) The lock of claim 14, further comprising:
said detent comprising an arm arcuately engaging said cylinder and a tooth extending from said arm and through said slot; and
said distal member being oriented within said plug in an engagement of said tooth to obstruct said rotation of said plug from said rest orientation, and to move relative to said plug from said engagement of said tooth obstructing said rotation of said plug from said rest orientation to an accommodation of passage of said tooth relative to said distal member during rotation of said plug from said rest orientation relative to the cylinder when a key while inserted into said keyway generates said data signals representing information having a selected said correspondence with said code, and continuing said accommodation despite intermittent removal of the key from said opening absent subsequent said generation of data signals representing information having said selected correspondence with said code.

21. (previously presented) The lock of claim 16, further comprising:
a sidebar positioned between said first base and said second base to provide reciprocation between a first location with said sidebar providing simultaneous engagement with said plug and said cylinder, and a second location releasing said plug for rotation relative to the cylinder; and
said electrical operator comprising an electrical solenoid borne by said plug, said distal member comprising an armature travelling in dependence upon said control signals between a third position relative to said exterior surface maintaining said simultaneous engagement and a fourth and different position relative to said exterior surface accommodating said reciprocation.

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22. (previously presented) The lock of claim 17, further comprising:

a sidebar positioned between said first base and said second base to provide reciprocation between a first location with said sidebar providing simultaneous engagement with said plug and said cylinder, and a second location releasing said plug for rotation relative to the cylinder; and

said electrical operator comprising an electrical solenoid borne by said plug, said distal member comprising an armature travelling in dependence upon said control signals between a third position relative to said exterior surface maintaining said simultaneous engagement and a fourth and different position relative to said exterior surface accommodating said reciprocation.

23. (previously presented) The lock of claim 18, further comprising:

a sidebar positioned between said first base and said second base to provide reciprocation between a first location with said sidebar providing simultaneous engagement with said plug and said cylinder, and a second location releasing said plug for rotation relative to the cylinder; and

said electrical operator comprising an electrical solenoid borne by said plug, said distal member comprising an armature travelling in dependence upon said control signals between a third position relative to said exterior surface maintaining said simultaneous engagement and a fourth and different position relative to said exterior surface accommodating said reciprocation.

24. (previously presented) The lock of claim 19, further comprising:

a sidebar positioned between said first base and said second base to provide reciprocation between a first location with said sidebar providing simultaneous engagement with said plug and said cylinder, and a second location releasing said plug for rotation relative to the cylinder; and

said electrical operator comprising an electrical solenoid borne by said plug, said member comprising an distal armature travelling in dependence upon said control signals between

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a third position relative to said exterior surface maintaining said simultaneous engagement and a fourth and different position relative to said exterior surface accommodating said reciprocation.

25. (previously amended) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess;

a stationary bar borne by said shell and interposed between said shell and said cylinder plug to create an obstruction to rotation of said cylinder plug within said recess;

said cylinder plug comprising:

a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base configured to support a cam; and

an electrical operator borne by said cylinder plug and rotatable with said cylinder plug, said electrical operator being electrically operable to respond to a control signal by moving independently of said bar between one of a first orientation accommodating relative movement between said shell and said cylinder plug and a second and different orientation maintaining obstruction of said relative movement by engaging said bar, and another of said first orientation and said second orientation.

26. (previously amended) The lock of claim 25, further comprised of:

a logic circuit generating said control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit; and

said electrical operator moving between said second orientation and said first orientation in response to said control signal.

27. (previously amended) The lock of claim 25, further comprised of a key retainer

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maintaining a shank of a key within said cylinder plug during rotation of said cylinder plug relative to said shell.

28. (previously amended) The lock of claim 27, further comprised of a locking mechanism borne by said cylinder plug, said cylinder plug being perforated by an aperture admitting reciprocal travel of a key relative to said locking mechanism, and said locking mechanism obstructing movement of said cylinder plug relative to said shell absent the key exhibiting a selected relation with said locking mechanism.

29. (previously amended) The lock of claim 25, further comprised of a plurality of electrical conductors borne by said lock to engage a circuit in a key inserted into said cylinder plug.

30. (previously amended) The lock of claim 25, further comprised of a power source to energize said electric operator, positioned to rotate with said cylinder plug relative to said shell.

31. (previously amended) The lock of claim 30, further comprised of said power source being mounted on a key.

32. (previously amended) The lock of claim 25, further comprised of a network of a plurality of cylinder plugs including said cylinder plug, and a switching device controlling operation of said network.

33. (previously amended) The lock of claim 32, with said switching device comprising a logic circuit.

34. (previously presented) The lock of claim 1, further comprised of said:
electrical operator comprising an electrical coil moving said distal member, to

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3 reciprocate said distal member between said first position and said second position in response to
4 said control signals; and

5 said distal member bearing a circumferential surface blocking said radial movement
6 of said sidebar while said distal member is in said second position, and accommodating said radial
7 movement while said distal member is in said first position.

1 35. (previously presented) The lock of claim 6, further comprised of said:

2 electrical operator comprising an electrical coil moving said distal member, to
3 reciprocate said distal member between said first position and said second position in response to
4 said control signals; and

5 said distal member bearing a circumferential surface blocking said radial movement
6 of said sidebar while said distal member is in said second position, and accommodating said radial
7 movement while said distal member is in said first position.

1 36. (previously presented) The lock of claim 16, further comprising said distal member
2 bearing a mass engaging said detent and blocking said rotation while said distal member is in said
3 first position, and a groove through said mass accommodating relative passage between said distal
4 member relative to said detent while said distal member is in said second position.

1 37. (previously presented) The lock of claim 16, further comprising said distal member
2 bearing a mass exhibiting a first height accommodating relative passage between said distal member
3 relative to said detent while said distal member is in said second position, and a second and greater
4 height engaging and blocking said rotation while said distal member is in said first position.

1 38. (previously presented) The lock of claim 16, further comprising said distal member
2 bearing a mass having a periphery engaging said detent and blocking said rotation while said distal
3 member is in said first position, and a central variation in said mass relative to said periphery

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accommodating relative passage between said distal member and said detent while said distal member is in said second position.

39. (previously amended) The lock of claim 25, further comprising:
a logic circuit generating said control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit;
a conductor provided by said cylinder plug, conveying said data signal to said logic circuit; and
said electrical operator moving from said second orientation to said first orientation in response to said control signal.

40. (previously amended) The lock of claim 39, with said conductor comprising an electrical conductor.

41. (previously amended) The lock of claim 25, further comprising:
a logic circuit borne by said cylinder plug, generating said control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit;
a conductor borne by said cylinder plug, conveying said data signal to said logic circuit; and
said electrical operator moving between said second orientation and said first orientation in response to said control signal.

42. (previously amended) The lock of claim 41, with said conductor comprising an electrical conductor.

43. (withdrawn) A lock, comprising:

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2 a cylinder containing a hollow interior recess defining a longitudinal axis, and bearing
3 a slot within said recess; and

4 a cylinder plug rotatable from a rest orientation around said longitudinal axis while
5 resident within said hollow recess relative to said cylinder; and

6 an elongate member positioned between said cylinder and said cylinder plug, and
7 while extending into said slot, preventing rotation between said cylinder and said cylinder plug by
8 making a direct simultaneous engagement of said cylinder and said cylinder plug while said plug
9 remains in said rest orientation and, in response to a torque that is externally applied to said cylinder
10 plug and that causes said rotation of said cylinder plug within said shell, exiting said slot while
11 maintaining a second simultaneous engagement of said cylinder and said cylinder plug that
12 accommodates said rotation;

13 said cylinder plug comprising:

14 a first base bearing an orifice spaced-apart from and separated by a mass of
15 said cylinder plug;

16 a second base separated by an axial length of said cylinder plug from said first
17 base, said second base disposed to support a cam, said mass being penetrated by a radially
18 oriented aperture;

19 an exterior surface extending between said first base and said second base;

20 a conductor having a terminal exposed to an exterior of said first base through
21 said orifice;

22 an electronic logic circuit comprising a memory storing a code, said circuit
23 being borne by said cylinder plug and coupled to receive data signals via said conductor, said
24 circuit generating control signals in dependence upon a comparison between said code and
25 information borne by said data signal;

26 an electrical operator mounted within said aperture, said operator having a
27 movable member traveling in dependence upon said control signals between a first position
28 relative to said exterior surface maintaining said simultaneous engagement by blocking

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29 movement of said elongated member from said direct simultaneous engagement and a second
30 and different position relative to said exterior surface accommodating movement between
31 said plug and said cylinder; and
32 a component biasing said movable member to maintain said simultaneous
33 engagement.

1 44. (withdrawn) The lock of claim 43, further comprising:
2 said elongate member comprising a sidebar positioned between said first base and
3 said second base to reciprocate between a first location while providing said simultaneous
4 engagement, and a second location releasing said plug for rotation relative to said cylinder; and
5 said movable member being oriented within said plug to move relative to said plug
6 to accommodate reciprocation of said sidebar relative to said plug and rotation of said plug from said
7 rest orientation relative to the cylinder when a key while inserted into said plug generates said data
8 signals representing information having a selected said comparison with said code, and obstructing
9 said reciprocation absent said selected comparison.

1 45. (withdrawn) The lock of claim 43, further comprising:
2 said elongate member comprising an arm arcuately engaging said cylinder and a
3 detent extending from said arm and through said slot; and
4 said movable member being oriented within said plug to move relative to said plug
5 to accommodate passage of said detent relative to said movable member during rotation of said plug
6 from said rest orientation relative to the cylinder when a key while inserted into said plug generates
7 said data signals representing information having a selected said correspondence with said code, and
8 obstructing said rotation of said plug from said rest orientation by engaging said detent absent said
9 selected correspondence.

1 46. (previously presented) A lock, comprising:

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2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;

4 a cylinder plug rotatable around said longitudinal axis while resident within said
5 hollow recess;

6 a bar borne by said plug and rotatable with said plug relative to said shell, said bar
7 being interposed between said shell and said cylinder plug to reciprocate generally along a radial
8 plane between a first position engaging both said shell and said cylinder plug while obstructing
9 rotation of said cylinder plug within said recess, and a second position accommodating said rotation,
10 said cylinder plug comprising:

11 a first base and a second base separated by an axial length of said plug from said first
12 base, said second base bearing means for supporting a cam; and

13 an electrical operator being electrically operable to respond to an electrical control
14 signal by obstructing movement of said bar between said first position and said second position in
15 response to a first state of said control signal and by moving within a second and different plane not
16 coextensive with said radial plane in response to application of said control signal to accommodate
17 said movement of said bar in response to a second and different state of said control signal.

1 47. (previously presented) The lock of claim 46, further comprised of said operator directly
2 obstructing movement of said bar between said first position and said second position absent said
3 control signal.

1 48. (previously presented) The lock of claim 46, further comprised of:

2 a logic circuit borne by said cylinder plug generating said control signal in response
3 to a comparison between a code set within said logic circuit and a data signal applied to said logic
4 circuit; and

5 said electrical operator moving to accommodate said movement by said bar in
6 response to said control signal.

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1 49. (previously presented) The lock of claim 46, further comprised of a locking mechanism
2 borne by said cylinder plug, said cylinder plug being perforated by an aperture admitting reciprocal
3 travel of a key relative to said locking mechanism, and said locking mechanism obstructing
4 movement of said cylinder plug relative to said shell absent the key exhibiting a selected relation
5 with said locking mechanism.

1 50. (previously presented) The lock of claim 46, further comprised of a plurality of electrical
2 conductors borne by said lock to engage a circuit in a key inserted into said cylinder plug.

1 51. (previously presented) The lock of claim 46, further comprised of a power source
2 energizing said electric operator to move during said second and different state of said control signal,
3 positioned to rotate with said cylinder plug relative to said shell.

1 52. (previously presented) The lock of claim 51, further comprised of said plug containing
2 a keyway, and said power source being mounted on a key insertable into said keyway.

1 53. (previously amended) The lock of claim 46, further comprised of a network of plugs
2 including said cylinder plug, and a switching device controlling operation of said network and said
3 state of said control signal.

1 54. (previously presented) The lock of claim 46, further comprised of:
2 said cylinder plug containing a keyway;
3 a memory borne by said cylinder plug and storing a code; and
4 a logic circuit comprising a memory storing a code, said circuit being borne by said
5 cylinder plug and generating said control signal in dependence upon correspondence between said
6 code and data borne by a key insertable within said keyway.

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1 55. (previously amended) The lock of claim 25, further comprised of:
2 said cylinder plug containing a keyway;
3 a memory borne by said cylinder plug and storing a code; and
4 a logic circuit comprising a memory storing a code, said circuit being borne by said
5 cylinder plug and generating said control signal in dependence upon correspondence between said
6 code and data borne by a key insertable within said keyway.

1 56. (previously presented) A lock, comprising:
2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;
4 a plug rotatable around said longitudinal axis while resident within said hollow
5 recess;
6 an elongate member interposed between said shell and said plug to travel generally
7 along a radial direction between a first position where said elongate member obstructs rotation
8 between said shell and said plug by making a direct simultaneous engagement of both said shell and
9 said plug, and in response to a torque that is externally applied to said plug and causes rotation of
10 said plug within said shell, exiting said recess and traveling to a second position while maintaining
11 a second simultaneous engagement of said shell and said plug that accommodates said rotation;
12 said plug comprising:
13 a first base perforated by an aperture, and a second base separated by an axial
14 length of said plug from said first base, said second base bearing means for supporting a cam;
15 a logic circuit borne by said plug and rotatable with said plug, conveying said
16 data signal between said aperture to said logic circuit; and
17 an electrical operator responding to said control signals by moving
18 independently of said travel by said elongate member in a second direction within a plane
19 that maintains said simultaneous engagement but is not aligned with said radial direction

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20 between one of a first orientation obstructing said travel and relative operable movement
21 between said shell and said plug while said electrical operator is contained wholly within
22 said plug, and a second and different orientation accommodating said travel and said relative
23 operable movement between said shell and said plug, and another of said first orientation and
24 said second orientation.

Claims 57 through 63. (Canceled)

1 64. (previously presented) A lock, comprising:
2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;
4 a cylinder plug rotatable around said longitudinal axis while resident within said
5 hollow recess, said cylinder plug comprising a first base and a second base separated by an axial
6 length of said cylinder plug from said first base, said second base bearing means for supporting a
7 cam;
8 a sidebar interposed between said shell and said cylinder plug to travel generally
9 along a radial plane between a first position engaging both said shell and said plug while obstructing
10 rotation of said cylinder plug within said recess, and a second position accommodating said rotation;
11 a logic circuit generating an electrical control signal in response to a comparison
12 between a code set within said logic circuit and a data signal applied to said logic circuit;
13 an electrical conductor provided by said plug, conveying said data signal to said logic
14 circuit; and
15 an electrical operator borne by said cylinder plug and rotatable with said plug, said
16 electrical operator being electrically operable to respond to said control signal by moving in a
17 different plane independently of said travel by said sidebar, between one of a first orientation
18 providing obstruction of said travel and a second and different orientation accommodating said
19 travel, and another of said first orientation and said second orientation;

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said sidebar having a first portion that is positioned to be optionally blocked by another component of said lock functioning independently of said electrical operator to prevent said travel of said sidebar, and a second portion that is positioned to be blocked from said travel by said sidebar to said second position whenever said electrical operator is within said first orientation, and a second portion that is positioned to be optionally blocked by another component of said lock.

65. (previously presented) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam;

a bar interposed between said shell and said cylinder plug to travel generally along a radial plane between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation;

a logic circuit generating a control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit;

an electrical conductor provided by said plug, conveying said data signal to said logic circuit; and

an electrical operator comprising an armature, said armature being borne by said cylinder plug and rotating around said longitudinal axis with said plug, said electrical operator being electrically operable to respond to said control signal by moving independently of said travel, between one of a first orientation providing obstruction of said travel and a second and different orientation accommodating said travel, and another of said first orientation and said second orientation.

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66. (previously presented) The lock of claim 65, with said electrical operator further comprising a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to move from one of said first and second orientations to the other of said first and second orientations in response to said control signal.

67. (previously presented) The lock of claim 65, with said electrical operator further comprising a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to move from said first orientation to said second orientation in response to said control signal.

68. (previously presented) The lock of claim 65, with electrical operator further comprising a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to rotate around an arc in response to said control signal.

69. (previously presented) The lock of claim 65, with said electrical operator further comprising a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to reciprocate along a radial axis that is transverse to said radial plane in response to said control signal.

70. (previously presented) A lock, comprising:
a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;
a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam;
a bar interposed between said shell and said cylinder plug to travel generally along

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a radial plane between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation;

a logic circuit generating said control signal in response to a comparison between a code set within said logical circuit and a data signal applied to said logical circuit;

an electrical conductor provided by said plug, conveying said data signal to said logic circuit; and

an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to an electrical control signal applied to said electrical operator by moving along a geometrical construct other than to said radial plane between one of a first orientation providing obstruction of said travel and a second and different orientation accommodating said travel, and another of said first orientation and said second orientation.

71. (previously amended) The lock of claim 70, with said electrical operator further comprising an armature and a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to move along said geometric construct in response to said control signal.

72. (previously amended) The lock of claim 70, with said electrical operator further comprising an armature and a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to move along said geometric construct in response to said control signal from said second orientation to said first orientation.

73. (withdrawn) The lock of claim 70, with said geometric construct comprising an arc and said electrical operator further comprising an armature and a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to rotate around said arc in response to said control signal.

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1 74. (previously amended) The lock of claim 70, with said geometric construct comprising
2 a radial axis that is transverse to said radial plane, and said electrical operator further comprising an
3 armature and a coil of an electrically conducting material that is borne by said cylinder plug and
4 wound to drive said armature to reciprocate along said radial axis in response to said control signal.

1 75. (previously presented) A lock, comprising:
2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;
4 a cylinder plug rotatable around said longitudinal axis while resident within said
5 hollow recess, said cylinder plug comprising a first base and a second base separated by an axial
6 length of said cylinder plug from said first base, said second base bearing means for supporting a
7 cam;
8 a bar interposed between said shell and said cylinder plug to travel generally along
9 a radial plane between a first position engaging both said shell and said plug while obstructing
10 rotation of said cylinder plug within said recess, and a second position accommodating said rotation;
11 a logic circuit generating a control signal in response to a comparison between a code
12 set within said logic circuit and a data signal applied to said logic circuit;
13 an electrical conductor provided by said plug, conveying said data signal to said logic
14 circuit; and
15 an electrical operator borne by said cylinder plug and rotatable with said plug, said
16 electrical operator being electrically operable to respond to said control signal by moving along a
17 radial axis that is transverse to said radial plane, between a first orientation providing obstruction of
18 said travel and a second and different orientation accommodating said travel.

1 76. (previously presented) A lock, comprising:
2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;

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a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam;

a logic circuit generating said control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit;

an electrical conductor provided by said plug, conveying said data signal to said logic circuit;

an elongate bar exhibiting a greatest longitudinal dimension along a second axis that extends transversely to said first base and to said second base, said bar being interposed between said shell and said cylinder plug to travel generally along a radial axis that is transverse to said second axis, between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation; and

an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to said control signal by moving along said radial axis between one of a first orientation providing obstruction of said travel and a second and different orientation accommodating said travel, and another of said first orientation and said second orientation.

77. (previously presented) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam;

a logic circuit generating said control signal in response to a comparison between a

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code set within said logic circuit and a data signal applied to said logic circuit;
an electrical conductor provided by said plug, conveying said data signal to said logic circuit;

an elongate bar exhibiting a greatest longitudinal dimension along a second axis that extends transversely to said first base and to said second base, said bar being interposed between said shell and said cylinder plug to travel generally along a radial axis that is radial to said cylinder plug and transverse to said second axis, between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation; and

an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to a control signal by moving between one of a first orientation providing obstruction of said travel and a second and different orientation accommodating said travel, and another of said first orientation and said second orientation.

78. (previously amended) The lock of claim 25, with said electrical operator further comprising an armature and a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to move from one of said first and second orientations to the other of said first and second orientations in response to said control signal.

79. (previously amended) The lock of claim 25, with said electrical operator further comprising an armature and a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to move from said first orientation to said second orientation in response to said control signal.

80. (previously amended) The lock of claim 25, with electrical operator further comprising an armature and a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to rotate around an arc in response to said control signal.

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1 81. (previously amended) The lock of claim 25, with said electrical operator further
2 comprising an armature and a coil of an electrically conducting material that is borne by said cylinder
3 plug and wound to drive said armature to reciprocate along a radial axis that is transverse to said
radial plane in response to said control signal.

1 82. (previously amended) The lock of claim 25, further comprised of a component biasing
2 said bar to maintain said first position engaging both said shell and said plug.

1 83. (previously amended) The lock of claim 25, further comprised of a component biasing
2 said electrical operator to maintain said second orientation providing obstruction of said bar.

1 84. (previously amended) The lock of claim 25, further comprised of:
2 a first component biasing said bar to maintain said first position engaging both said shell and
3 said plug; and
4 a second component biasing said electrical operator to maintain said second orientation
5 providing obstruction of said bar.

Claims 85-89. (Canceled)

1 90. (previously presented) A process of retrofitting a mechanical cylinder lock to form an
2 electromechanical cylinder lock, the process comprising steps of:

3 providing a mechanical cylinder lock including an outer shell with a bore, a first rotatable
4 barrel located in the bore, and a side bar for preventing and permitting rotation of the barrel within
5 the bore in the shell;

6 removing the first barrel from the shell;

7 providing an electronically powered rotatable barrel having an exterior adapted to

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substantially correspond to the bore in the shell, and including:

at least one electromechanical locking member disposed in the barrel, the electromechanical locking member being positionable to permit the side bar to engage the locking member in a non-barrel blocking position which permits the barrel to rotate with respect to the shell, and the electromechanical locking member also being positionable in a barrel blocking position which blocks rotation of the barrel with respect to the shell; and

an electronically powered drive mechanism cooperating with the electromechanical locking member to selectively move the locking member from the barrel blocking position to the non-barrel blocking position in which the side bar engages the locking member to rotate the barrel and operate the lock; and

securing the electronically powered rotatable barrel in the bore in the shell to form an electromechanical cylinder lock, the lock including control means carried by at least one of the barrel and bore for energizing the electronically powered drive mechanism in response to an authorized attempt to open the lock.

91. (previously presented) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising a first base perforated by a keyway and a second base separated by an axial length of said cylinder plug from said first base, said second base disposed to support a cam;

a bar interposed between said shell and said cylinder plug to reciprocate generally along a radial plane between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation when a torque is externally applied to said keyway to rotate said cylinder plug within said shell;

a locking mechanism borne by and rotating with said cylinder plug, said locking

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mechanism being interposed between said cylinder plug and said bar, and exhibiting a first disposition hindering said reciprocation and, in response to insertion of a key in physical conformance to said locking mechanism, exhibiting a second and different disposition accommodating said reciprocation; and

an electrical operator borne by said cylinder plug and rotatable with said cylinder plug, said electrical operator being electrically operable to respond to a control signal by moving independently of said bar between a first orientation providing obstruction of said reciprocation by said bar and a second and different orientation removing said obstruction.

92. (previously presented) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess;

a bar interposed between said shell and said cylinder plug to extend generally along a radial plane between a first state engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second state accommodating said rotation;

said cylinder plug comprising:

a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base configured to support a cam; and

an electrical operator comprising an armature borne by said cylinder plug and rotatable with said cylinder plug, said electrical operator being electrically operable to respond to a control signal by moving said armature independently of said bar, between one of a first orientation providing obstruction of said rotation during said first state and a second orientation accommodating independent relative movement between said bar and said cylinder plug, and another of said first orientation and said second orientation.

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1 93. (previously presented) The lock of claim 92, further comprised of:
2 a coil wound to provide conduction of an electrical current in response to said control
3 signal; and
4 said armature comprising an exterior surface exhibiting a rest position between said
5 shell and said cylinder plug, said armature obstructing said rotation absent said conduction,
6 accommodating said rotation during said conduction, and accommodating said rotation until said
7 rotation returns said armature to said rest position after termination of said conduction.

1 94. (Withdrawn) The lock of claim 92, further comprised of:
2 a coil wound to provide conduction of an electrical current in response to said control
3 signal; and
4 said armature comprising an exterior surface exhibiting a rest position with said
5 exterior surface extending between said shell and said cylinder plug while said cylinder plug is in
6 alignment with said shell in a locked condition, said armature obstructing said rotation absent said
7 conduction, accommodating said rotation during said conduction by withdrawing from said shell and
8 wholly into said cylinder plug, accommodating said rotation until said rotation returns said armature
9 to said rest position after termination of said conduction, and resuming said rest position when said
10 rotation restores said alignment.

1 95. (previously presented) The lock of claim 92, further comprised of:
2 a coil wound to provide conduction of an electrical current in response to said control
3 signal; and
4 said armature comprising an exterior surface exhibiting a rest position between said
5 bar and said cylinder plug, said armature obstructing said rotation absent said conduction, said
6 armature accommodating said rotation during said conduction, and said armature accommodating
7 said rotation until said rotation returns said armature to said rest position after termination of said
8 conduction.

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1 96. (previously presented) The lock of claim 92, further comprised of:
2 a coil wound to provide conduction of an electrical current in response to said control
3 signal; and
4 said armature comprising an exterior surface exhibiting a rest position with said first
5 orientation while said exterior surface is interposed between said bar and said cylinder plug and
6 obstructs said rotation absent said conduction, said armature assuming said second orientation,
7 withdrawing from said interposition and accommodating said rotation during said conduction, and
8 said armature accommodating said rotation until said rotation returns said armature to said rest
9 position with said first orientation after termination of said conduction.

1 97. (previously presented) The lock of claim 92, further comprised of:
2 a coil wound to provide conduction of an electrical current in response to said control
3 signal; and
4 said armature comprising an exterior surface exhibiting a rest position with said first
5 orientation while said exterior surface is interposed between said bar and said cylinder plug and
6 obstructs said rotation absent said conduction, said armature assuming said second orientation,
7 withdrawing from said interposition and accommodating said rotation during said conduction, and
8 said armature maintaining said second orientation and accommodating said rotation after said
9 rotation returns said armature to said rest position after termination of said conduction.

1 98. (previously presented) The lock of claim 92, further comprised of:
2 a coil wound to provide conduction of an electrical current in response to said control
3 signal; and
4 said armature comprising an exterior surface exhibiting a rest position with said first
5 orientation while said exterior surface is interposed between said bar and said cylinder plug and
6 obstructs said rotation absent said conduction, said armature assuming said second orientation,

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7 withdrawing from said interposition and accommodating said rotation during said conduction, said
8 armature maintaining said second orientation and accommodating said rotation after said rotation
9 returns said armature to said rest position after termination of said conduction, and said armature
10 resuming said first orientation during renewal of said conduction subsequent to said termination.

1 99. (previously presented) The lock of claim 92, further comprised of:

2 a coil wound to provide conduction of an electrical current in response to said control
3 signal; and

4 said armature comprising an exterior surface exhibiting a rest position while in said
5 first orientation absent said conduction with a first thickness of said exterior surface interposed
6 between said bar and said cylinder plug and with said cylinder plug in alignment with said shell in
7 a locked position, said armature exhibiting said second orientation and accommodating said rotation
8 during said conduction with a second and lesser thickness of said exterior surface permitting
9 movement of said bar relative to said cylinder plug, and said armature accommodating said rotation
10 until said rotation allows said bar to reverse said relative movement and said armature to return to
11 said rest position after termination of said conduction.

1 100. (previously presented) The lock of claim 92, further comprised of:

2 a logic circuit borne by said cylinder plug, generating said control signal in response
3 to a comparison between a code set within said logic circuit and a data signal applied to said logic
4 circuit; and

5 said electrical operator moving between said second orientation and said first
6 orientation in response to said control signal.

1 105. (previously presented) The process of claim 90, further comprising:

2 orienting said side bar to travel along a plane that extends approximately radially
3 relative to said electronically powered rotatable barrel when engaging said locking member; and
4 positioning said locking member to move on an axis that is approximately

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5 perpendicular to said plane when said locking member is selectively moved from said barrel
6 blocking position to said non-barrel blocking position.

Claims 101-104. (Canceled)

1 105. (previously amended) The process of claim 90, further comprising:
2 orienting said side bar to travel along a plane that extends approximately radially
3 relative to said electronically powered rotatable barrel when engaging said locking member; and
4 positioning said locking member to move on an axis that is approximately
5 perpendicular to said plane when said locking member is selectively moved from said barrel
6 blocking position to said non-barrel blocking position.

1 106. (previously presented) The lock of claim 14, further comprising said bar engaging both
2 said shell and said plug during said movement between said plug and said cylinder.

1 107. (previously amended) The lock of claim 25, further comprising said bar engaging both
2 said shell and said cylinder plug during said rotation.

1 108. (previously presented) The lock of claim 46, further comprising said bar engaging both
2 said shell and said cylinder plug during said rotation.

1 109. (previously presented) The lock of claim 64, further comprising said sidebar engaging
2 both said shell and said cylinder plug during said rotation.

1 110. (previously amended) The lock of claim 65, further comprising said bar engaging both
2 said shell and said cylinder plug during said rotation.

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1 111. (previously presented) The lock of claim 70, further comprising said bar engaging both
2 said shell and said cylinder plug during said rotation.

1 112. (previously presented) The lock of claim 75, further comprising said bar engaging both
2 said shell and said cylinder plug during said rotation.

1 113. (previously presented) The lock of claim 76, further comprising said bar engaging both
2 said shell and said cylinder plug during said rotation.

1 114. (previously presented) The lock of claim 77, further comprising said bar engaging both
2 said shell and said cylinder plug during said rotation.

1 115. (previously presented) The lock of claim 85, further comprising said side bar engaging
2 both said shell and said barrel during said rotation.

1 116. (previously presented) The lock of claim 91, further comprising said bar engaging both
2 said shell and said cylinder plug during said rotation.

Claims 117-118. (Canceled)

1 119. (previously presented) The lock cylinder of claim 85, in which said side bar moves out
2 of the cavity and engages the locking member to rotate the barrel and operate the lock.

1 120. (previously presented) A rotatable lock barrel for insertion into a lock cylinder having
2 a bore formed therein, the barrel comprising:

3 an elongated, generally cylindrically shaped barrel member having an exterior configured for
4 receipt in a bore of a lock cylinder and an interior containing a plurality of electromechanical locking

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members, the barrel member having a recess formed therein;

wherein the locking members are disposed in the recess of the barrel member and are substantially entirely contained within the barrel member, each of the locking members including a groove and the locking members being movable to a position in which the grooves of the locking members are aligned;

the recess in said barrel member being configured to receive at least a portion of a movable side bar of a lock cylinder to permit the side bar to move into and out of engagement with the grooves of the locking members for selectively permitting and blocking rotation of the barrel member with respect to a lock cylinder when positioned therein;

an electronically powered drive mechanism located within the barrel member for moving the electromechanical locking members to a position in which the grooves of the locking members are aligned.

121. (previously presented) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess;

a bar interposed between said shell and said cylinder plug detent extending radially from a second recess within said shell into a passage within said cylinder plug to create an obstruction to rotation of said cylinder plug within said hollow recess;

said cylinder plug comprising:

a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base configured to support a cam; and

an electrical operator borne by said cylinder plug and rotatable with said cylinder plug, said electrical operator being electrically operable to respond to a control signal by moving independently of said detent between one of a first orientation accommodating

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15 relative movement between said detent and said cylinder plug and a second and different
16 orientation maintaining obstruction of said relative movement by engaging said detent, and
another of said first orientation and said second orientation.

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REMARKS

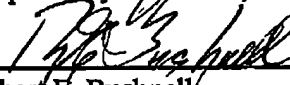
This Amendment has been prepared under 37 C.F.R. §41.33(b)(1).

Claims 1 through 56, 64 through 116 and 119 through 121 are pending in the application prior to entry of this Amendment under 37 C.F.R. §41.33(b)(1). Allowance of claims 25 through 33, 39 through 42, 55, 78 through 84 and 107 is noted with appreciation. Claims 43 through 45, 73 and 94 are withdrawn from consideration.

By this Amendment, claims 85 through 89 and 101 through 104 have been canceled without prejudice or disclaimer of their subject matter. Thus, claims 1 through 56, 64 through 84, 90 through 100, 105 through 116 and 119 through 121 will be pending after entry of this Amendment.

No fee is incurred by this Amendment. Should other fees be incurred however, the Commissioner is authorized to charge Deposit Account No. 02-4943 of Applicant's undersigned attorney in the amount of such fees.

Respectfully submitted,


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